



**CHALLENGES OF ACCESSING WATER FOR AGRICULTURE BY EMERGING
FARMERS OF THE BREEDE-GOURITZ CATCHMENT MANAGEMENT AGENCY**

by

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ABSTRACT

Access to natural resources in South Africa is highly skewed with access to water even wider. The bulk of the water is accessed more by large-scale commercial farmers than historically disadvantaged individuals (including smallholder farmers and emerging farmers). The reform of natural resources including that of water brought developments and implementation of new policies and strategies within the water sector to improve access to water by the smallholder farmers. Licensing water use was supposed to solve the problem of access to water. However, the process has had little impact to date with few licences being released to the smallholder farmers. The study aimed to assess the challenges faced by organisations that support smallholder farmers, specifically the Breede-Gouritz Catchment Management Agency, in allocating water to the smallholder farmers. The study also explored the challenges faced by the smallholder farmers in accessing water through the water user licensing process. A qualitative case study approach was used for data collection. The main objectives of the research were to review the status of the national Water Allocation Reform strategy in terms of the progress of its strategic intent and contribution towards achieving equity in water allocation in South Africa; to review the success of Water Allocation Reform strategy of the Breede-Gouritz Catchment Management Agency in allocating water to smallholder and emerging farmers; to identify organisational capacity challenges that the Breede-Gouritz Catchment Management Agency faces in implementing its Water Allocation Reform strategy through the water use licence process; and also to identify socio-economic capacity challenges that smallholder farmers face in applying for water user licences. The study adopted the Policy Implementation Framework to understand the challenges that the organisations supporting smallholder farmers face in achieving water allocation reform and that which smallholder farmers face when applying for a water user licence. The data was collected through desktop reviews and one-to-one interviews. The data were analysed using Atlas.ti software version 8.1. The results showed that the existing lawful water use continues to privilege previously advantaged commercial farmers. There is a lack of human capacity in organisations supporting smallholders, which leads to limited communication between the organisation and smallholder farmers. The Breede-Gouritz Catchment Management Agency also experiences water scarcity, which limits available water. There is little or no understanding of the water user licence application processes by smallholder farmers. Therefore, there is a need to establish a water allocation unit that deals specifically with water licensing at the Breede-Gouritz Catchment Management Agency to speed up the process and more water should be made available in catchment areas through persuading the existing lawful users to release some of their water. The study further recommends the categorisation of smallholder farmers with different needs to be able to assist them according to their needs.

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DEDICATION

I would like to dedicate this dissertation to my daughter, Baby Hlalala and my mother
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ABBREVIATIONS AND ACRONYMS

AFASA	African Farmers Association of South Africa.
BEE	Black Economic Empowerment
BGCMA	Breede-Gouritz Catchment Management Agency
CC	Catchment council
CL	Compulsory licensing
CMA	Catchment Management Agency
DLA	Department of Land Affairs
DRDLR	Department of Rural Development and Land Reform
DTI	Department of Trade and Industry
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ELU	Existing lawful use
GA	General Authorisation
GWUA	Groenland Water User Association
Ha	Hectare
HDI	Historically disadvantaged individual
IB	Irrigation Board
IUCMA	Inkomati-Usuthu Catchment Management Agency
IWRM	Integrated Water Resource Management
NWA	National Water Act
SAAFWUA	South Africa Association of Water User Associations
SDGs	Sustainable development goals
V&V	Validation and verification
WARMS	Water Authorisation and Registration Management System
WAR	Water Allocation Reform
WCDoA	Western Cape Department of Agriculture
WUA	Water User Association
WUL	Water user licence

CHAPTER 1

INTRODUCTION

1.1 Introduction

Access to resources has been differentiated by scholars from access to knowledge and technology. Access depends on participation in a variety of social institutions (Berry, 1989). According to Merriam Webster Collegiate Dictionary (1998), *access* is the freedom or ability to obtain or make use of. Access to resources is vital in improving people's livelihoods (Berry, 1989). However, globally, access to and the use of water is very skewed. People are trapped in a cycle of poverty due to an imbalance in access to water (Seetal & Quibell, 2005). In many countries, laws, policies and regulations, or the lack of them, deny people the opportunity to gain access to certain resources and they remain poor (Audinet & Haralambous, 2005). Historically, access to water has been regulated in sectors for agricultural production, public health, economic development and more recently, water is environmentally protected (Speed et al., 2013). Water policies have been passed in many countries to adapt to international conventions and treaties believing that laws, policies and regulations provide a framework through which water resources can be managed to enhance access to water by the poor (Anderson et al., 2007; Mulwafu, 2010).

Water for irrigation in the Andean countries (Peru, Ecuador and Chile) is regulated by an official law. However, the customary water law was enforced by the peasant community since they are the main suppliers of food for its population (Mitchell & Guillet, 1994; Vincent, 1998). Each irrigation system, whether state owned, communal or private, has its own practices and norms (Pacari, 1998; Urteaga, 1998; Bustamante, 2002; Gentes, 2002; Guevara-Gil et al., 2002; Palacios & Law, 2002; Gelles & Boelens, 2003; Guevara-Gil, 2003; Urteaga et al., 2003; Boelens et al., 2005; Palacios, 2006). To avoid the water crisis, the Andean region tried to reform water policies through the decentralisation of water management that entails deregulation and privatisation of water management in trying to stimulate efficiency (Bauer, 1997; Dourojeanni & Jouravlev, 1999; Boelens & Zwartveen, 2005). This led the registration of the right to resources by the recognised authority with a high economic return. The law did not recognise the right to regulate and this has prohibited the peasant community from using their local authority over their resources (Guevara-Gil et al., 2002; Boelens, 2006; Vera, 2005).

In Africa, the reform process entails the formalisation of rights, which previously were considered to be under the influence of customary arrangements (Benjaminsen & Lund, 2002; Meinzen-Dick & Nkonya, 2007). The formal and informal system of water rights and other natural resources is preferred in Malawi. Therefore, water users such as small-scale farmers were expected to obtain water user permits through the Water User Association (WUA) to be productive (Ferguson & Mulwafu, 2004). Due to the high level of illiteracy and poverty amongst

small-scale farmers, it was difficult for the government to perform this task as transaction costs are involved in the collection of fees. Small-scale farmers were affected negatively since they were unfamiliar with paying for water (MacDonald, 2003; Malawi Government, 2005). Therefore, the bulk of the water is accessed by those who are familiar with paying water rates.

Tanzania had the same experience in terms of access to water by smallholder farmers. Due to water scarcity, the country revised its water policies from customary law and practices, which is currently not recognised in formal legislation. Water users needed to get formal water rights (Rajabu & Mahoo, 2008). The Tanzanian water rights system, established in the 20th century by the colonial authorities, was designed specifically to prevent the use of water by the local inhabitants while enhancing access to water for the European settlers (Lein & Tagseth, 2009). Previous studies indicate that though smallholder farmers acquired water rights, they still wanted to uphold their customary practices, while large-scale irrigators or commercial farmers who adhered to the state's statutory water law invested in water-related infrastructure to secure access to water (Komakech et al., 2012).

In South Africa, the Water Allocation Reform (WAR) strategy serves as a connection between the policy intent and the practical implementation of the National Water Act (NWA) No. 36 of 1998 by addressing the imbalance of the past in accessing water. South Africa and Zimbabwe, together with several other countries, have embraced the idea of Integrated Water Resource Management (IWRM), which promotes the concept of decentralisation of water management responsibility to newly established institutions in regional Catchment Management Agencies (CMAs) and local levels, which are the WUAs and stakeholder participation in decision-making (Braid & Görgens, 2010; Movik & de Jong, 2011).

1.2 Background of the research

South Africa is a water-scarce country with approximately 450mm of rainfall received per annum compared to the global average of 870mm per year. The country is currently ranked 30th of the driest countries in the world (Schreiner et al., 2010; South Africa. DWA, 2014). The stream flows are at a very low level for most of the time, resulting in perennial water shortages, especially in the drier provinces. Water is crucial to poverty eradication, social transformation and environmental justice (South Africa. NWA, 1998; Schreiner & van Koppen, 2002). Without access to water, no social transformation could occur in South Africa as water plays a very important role in the economy, contributing 60% towards agriculture and irrigation (South Africa. DWA, 2014). However, the scarcity of water, exacerbated by the legacy of apartheid, has led to unequal access to water by water users of different races for production purposes (Schreiner et al., 2009). To resolve these problems, the administration of water rights through licensing was seen as a core tool for WAR and the most influential in reaching the target of allocation of water to the poor (Movik & de Jong, 2011). General Authorisation (GA) and

Compulsory Licensing (CL) were set up as water allocation tools that could be used to support WAR (Anderson et al., 2007). The processes were to be carried out by the CMAs (CMAs) through their Catchment Management Strategies (CMS) as stipulated in Chapter 4 of the NWA, which lays the basis for regulating water use (South Africa. NWA, 1998). To date, two CMAs have been implemented, which are the Inkomati-Usuthu CMA and the Breede-Gouritz CMA (BGCMA). The main objective of the CMAs is to ensure that natural water resources also benefit smallholder farmers, emerging farmers and other low level persons, not only the big commercial enterprises.

The BGCMA has prioritised programmes promoting WAR by assisting smallholders, small-scale emerging farmers and resource-poor farmers through the Department of Water and Sanitation (DWS) (ex-Department of Water Affairs and Forestry, DWAF) subsidising the water licence application process. Studies were initiated to support the future decisions of water management in the area (Breede-Overberg Catchment Management Agency [BOCMA], 2012). The BGCMA also collaborated with other institutions to gather information in improving WAR (South Africa. DWAF, 2008; BOCMA, 2012). The BGCMA follows various processes to implement WAR guided by the NWA, although some of the processes are complicated. The CMA has taken over some of the responsibilities from the DWS, such as processing the water user licence (WUL) applications, although some of the responsibilities still reside with the DWS (BOCMA, 2012; Wessels et al., 2019). This prolongs the process of water use licence applications (Ncube, 2018). Another problem that complicates the implementation of WAR is the lack of funds. The CMA relies heavily on the central government for funds since the revenue from water sales is not enough to sustain the CMA. The central government releases funds late, which delays the implementation of some of the projects on the ground. Lack of water availability is another major challenge in the CMA. By 2010 it was reported that almost 100% of the water had already been allocated. Validation and verification (V&V) had been conducted to validate water that had already been allocated and for potential allocation (BOCMA, 2012). However, the process was very complex and slow and resulted in licensing backlogs (Ncube, 2018).

1.3 Problem statement

The complex processes of WUL applications hinder smallholder farmers in accessing water for productive agricultural use in South Africa. As a result, water distribution is skewed, with the bulk of water still being accessed by previously advantaged commercial farmers rather than previously disadvantaged individuals, including smallholder farmers and emerging farmers (Goldin, 2010; Vermeulen, 2018). The WARs implemented in 2008 to address the inequitable access to water have had little impact to date. The issuing of WULs to smallholder farmers is one of the key strategic mechanisms for enabling water access. However, this process remains complex and tedious, resulting in few licences being issued. This has

undermined the contribution of smallholder farmers to food production and efforts to ensure food security, to eradicate poverty and boost the economy of South Africa. Studies have been carried out to assess the effectiveness of WARs in terms of achieving the objectives of the reforms. The studies have shown that the reforms have not achieved the equitable, efficient and sustainable allocation of water (Msibi & Dlamini, 2011; Vermeulen, 2018; Williams, 2018).

The results of licensing through WAR are essential in reaching the target of reallocating water to the previously disadvantaged including the smallholder farmers (South Africa. DWAF, 2008). The NWA states that water for agricultural use that requires an application for a licence should only be granted to those smallholder farmers and emerging farmers that are members of the WUA. Failure to become a member limits individuals to use water other than that specified in Schedule One of the NWA (South Africa. NWA, 1998).

The term “farmer” is used interchangeably, depending on the country. In the Andean region farmers that practise farming on small areas of land are defined as peasant farmers. In Tanzania, they are referred to as smallholder farmers. In Malawi, they are referred to as small-scale farmers, while in Zimbabwe they are defined as smallholder farmers. In South Africa, there is no one-size-fits-all when it comes to defining the term “farmer”. According to Saruchera (2008), the term farmer covers new entry farmers who are mainly black, developing farmers, poor farmers and small-scale farmers. Hall (2004) refers to them as emerging farmers, black beneficiaries of land redistribution by the newly elected democratic government. The term becomes murky when it is applied to every (black) person interested in farming, from former farm workers to rural homeland dwellers to black businessmen who are securing land.

Emerging farmers may be described as previously disadvantaged individuals who are new entrants into farming (South Africa. Department of Land Affairs [DLA], 2007). The DLA further identifies developing farmers and resource-poor farmers as emerging farmers who are going places, meaning relatively successful new farmers, based on resources or income. DWAF (now DWS) defined resource-poor farmers as citizens of South Africa who are members of the historically disadvantaged population groups (South Africa. DWAF, 2004a). Hall (2004) characterises emerging farmers as black entrants into commercial farming.

Emerging farmers are also defined in the context of water resources as small-scale users who have a water licence or are supposed to obtain one soon (South Africa. DWAF, 2004a; Faysse, 2004). “Small-scale” often refers to backward, non-productive, non-commercial, subsistence farmers dwelling in the former homeland areas (Kirsten & van Zyl, 1998). There is no designated farm size for defining emerging farmers, although most of their farms are relatively small. Most farms are over 5 hectare (ha) on average, while commercial farms are between 30 and 120ha (Kirsten & Van Zyl, 1998; Saruchera, 2008). Denison and Manona (2007) and van Averbeke (2008) refer to emerging farmers as black farmers who receive support from the

government and other institutions to engage in agriculture, they have a desire to increase the commercialisation of their products and have a WUL or are about to obtain one.

Often farmers are defined as smallholders, small-scale, resource-poor and sometimes peasant farmers. The term smallholder only refers to their limited resources as compared to other farmers in the farming sectors. They can also be defined as those farmers that own small plots of land and have low economic returns (South Africa. DAFF, 2012). Globally and nationally, the term that is commonly used to define farmers is smallholder and this term is also preferred in various studies. Since there are so many conceptions of farmers, it seems prudent for this study to use the terms emerging farmer and smallholder farmer interchangeably, but the term smallholder farmer has been adopted as the term that is commonly used.

According to Kemerink et al. (2013), South Africa aims to redress inequalities of the past by the inclusion of smallholder farmers in WUA for the mutual benefit to access water for agricultural use. The author argues that the ideas of inclusion and representation that drive the concept of the WUA are highly challenging and the institutional settings are more familiar to the commercial farmers. Manzungu (2002) and Saruchera (2008) report that the platform of WUA to improve stakeholder participation has shown no benefits to smallholder farmers. For Faysse (2004), the success or failure in the inclusion of smallholder farmers comes from the fact that the formation of the WUA was transformed from the Irrigation Board (IB). As a result, power and privileges favour those who have the capacity to tap into those opportunities. Smallholder farmers may not have the capacity to partake in the process (Tailor, 1997) and remain with no access to water for agricultural use. In the view of Vermeulen (2018), the smallholder farmers are hindered from accessing water due to the complexity of the water authorisation processes and subsequent inability of the custodians to adequately allocate, authorise the use, monitor compliance and enforce water use authorisations.

To improve the participation in water resource management, the BGCMA has its WAR strategy, which is applied in allocating water to both the WUA-affiliated and non-WUA smallholder farmers. However, the non-WUA smallholder farmers still do not have access to water for agricultural use (Ncube, 2018). It is not very clear why it remains so difficult to give access to these farmers. The main objective of this study was therefore to gain an understanding of the challenges from both institutions and farmers' points of view. The study focused on Grabouw, Greyton, Genadendal, Botrivier, Robertson, Villiersdorp and Worcester, where there are farmers that are part of WUA and those that are not.

1.4 Main objective

The study aimed to assess the challenges faced by the BGCMA in allocating water to smallholder and emerging farmers and to understand the problems faced by the farmers in WUL application processes.

1.4.1 Specific objectives

- To review the status of the national WAR strategy to evaluate the progress made towards achieving equity in water allocation in South Africa;
- To review the WARS of the BGCMA to evaluate its success of allocating water to smallholder farmers;
- To identify the BGCMA WAR strategy to understand the challenges the organisation faces in implementing its strategy through its identified indicators (using the water user licence process as an indicator); and
- To identify the socio-economic capacity of smallholder farmers to understand the challenges faced in applying for WULs.

1.5 Outline of the dissertation

The study is structured in five chapters.

Chapter 1

The first chapter gives the background of the problem, followed by the research aims and objectives.

Chapter 2

This chapter reviews existing literature on access to water. The chapter discusses the water policies of agricultural water use for South Africa to identify the limitations in achieving the target of providing water to smallholder farmers. The strategy of the supporting organisation (BGCMA) for implementing water policy is also reviewed. The outcome assisted in the construction of the questionnaire for data collection from the organisation that implements WAR and the smallholder farmers.

Chapter 3

This is the research design and methodology chapter, which discusses the study area and the techniques applied in data collection.

Chapter 4

Chapter 4 provides the results and findings of the study and compares these with previous studies. In this chapter, the outcomes of the Policy Implementation Framework are discussed for the achievement of water allocation, to identify the limitations on water policy and

organisation in terms of achieving its goal of ensuring that smallholder farmers have access to water for agricultural use through WUL processes.

Chapter 5

Chapter 5 concludes the study. It provides conclusions on water policy, supporting organisations that allocate water to the smallholder farmers on how WAR can be achieved successfully, as well as the smallholder farmer recommendations on the application of water use licence process and suggests areas for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Access to and the use of water is highly skewed globally. People are trapped in a cycle of poverty due to imbalances in access to water (Seetal & Quibell, 2005). The policies, laws and regulations of many countries limit their people from opportunities to gain access to certain resources (Audinet & Haralambous, 2005). The Sustainable Development Goal (SDG) number 6 (SDG 6, Water and Sanitation) recommends that regulatory reforms such as water rights and allocation become the key policy to contribute towards poverty eradication. The IWRM ensured that water use should be managed holistically and that management should be carried to the lowest level (the level of the poor) for the benefit of the economy. The SDGs also highlight the importance of giving special attention and opportunities to the poor in improving their access to water resources. However, administration and control of licences are the most complex challenges water laws have ever imposed (Garduño, 2001).

The main objectives of the study were stated in Chapter 1. This chapter aims to review (i) water policy on access to water for agricultural use globally (ii) South African water policy to identify the gaps in access to water (iii) the state of allocating water through WULs.

2.2 Policies on access to agricultural water use globally

Access to water is a major contributor to agricultural production, hence the rapid increases in agricultural yields and outputs over the past three decades. In most developing countries, especially in rural areas, agriculture-related activities are considered as a vehicle to reduce poverty and provide most of the employment.

In the Andean countries such as Peru, Ecuador and Chile, water for irrigation is regulated by law. The native communities and peasant farmers have their way of regulating water for irrigation and are the main providers of food for its population (Mitchell & Guillet, 1994; Vincent, 1998). Recognising local water management through water rights is very important as it improves local livelihoods and secures food. However, access to water by the peasant farmers and the native communities was threatened by the policies. The water reform followed the top-down approach that conflicted with local management systems and native water rights (de Vos et al., 2006).

In Peru, the customary water law was enforced by certain people, depending on the agreement between the communities through a system of heritage. Each irrigation system, whether state-owned, communal or private, had its practices and norms. Even though the customary right was still recognised by the Political Constitution of Peru, the community had to register water

to claim their constitutional rights. Regions like Ecuador also agreed to work towards recognising legal pluralism. However, the operations were undermined or unrecognised (Pacari, 1998; Urteaga, 1998; Bustamante, 2002; Gentes, 2002; Guevara-Gil et al., 2002; Palacios & Law, 2002; Gelles & Boelens, 2003; Urteaga et al., 2003; Boelens & Zwarteveen, 2005). According to Peruvian law, water resources belong to the public, even when the community wants to keep its customary law (Ramazzotti, 2008).

To avoid the water crisis, the Andean region tried to reform water policies through the decentralisation of water management that entailed deregulation and privatisation of water management in trying to stimulate efficiency. This was influenced by the presentation made by China during the World Bank and the Inter-American Development Bank Conference, which showed the success of the country's economy after considering efficiency (Bauer, 1997; Dourojeanni & Jouravlev, 1999; Trawick, 2003; Boelens & Zwarteveen, 2005). However, the reform did not consider the real problems and laws were not based on understanding the potential of different players in water management (de Vos et al., 2006).

In Peru, decentralisation went hand in hand with re-centralisation. The Peruvian Constitution of 1993 and the law of the peasant farmers had an agreement that recognised the economy, which stated that the right to resources depends on the registration by the recognised authority. The law did not recognise the right to regulate and this undermined the peasant communities in having power over their resources (Guevara-Gil et al., 2002; Gelles, 2005; Vera, 2005; Boelens & Zwarteveen, 2005). Furthermore, the lack of financial capital and technology impeded bringing natural resources, including water, into full productivity. These have been declared by the Peruvian president as one of the effects that are holding back the economy and the progress of the country. Privatisation of peasant and native communities' natural resources was promoted to foster efficiency and productivity (Roa-García, 2014). This was followed by the establishment of a new law in 2009. The law requires one to acquire an efficiency certificate to have a water right. This only considered large-scale water users and deprived peasant farmers and native communities (Boelens & Vos, 2012).

In Chile, decentralisation was in the form of introducing the Indigenous Law in 1993, which guaranteed and protected the existing water rights of the indigenous community within the territory of the reserve and did not exclude the third party for normal functions. However, articles on water and mining legislation stated that water rights of the outsider were not affected by the indigenous law; unused indigenous water rights could be auctioned after five years, overruling the rights of the indigenous law. This has worked to the disadvantage of the indigenous community as they do not have funds to establish the water resources within the given period. Priority was given to industries like mines that could make a profit from water rights, jeopardising the unregistered customary water rights that still demanded legal protection

of water rights markets in the business sector (Boelens et al., 2005). The official legislation threatened indigenous communities' water management by the dominance of economic criteria over social criteria (Hendriks, 1998). These led sectors outside the system to engage in water markets due to economic power, which threatened community irrigation water rights (Gentes, 2002; Hendriks, 2004). The national official legislation faced difficulties in defending the indigenous and peasant water management system. Official law hardly recognised the communal water system, which left it vulnerable and many indigenous communities threatened to sell their water to the third parties (Hendriks, 1998).

Water management in the Andean regions still upholds the traditional irrigation method together with some initiatives from the state, community and individuals to exploit water sources. The system presents an opportunity for community and individual water users to participate in different water management systems. The combination was complex and did not resemble the official legislative definition of water rights. Hence, water legislation was introduced and had to be revised in 2009, aiming to promote efficiency and productivity (Boelens & Vos, 2012). In formulating the official legislation, several issues such as local water management and historical heritage were not considered (de Vos et al., 2006). According to Hearne and Easter (1995), the idea of water markets had generated a storm of controversy from the moment it was officially announced. The concept of efficiency in policy had affected the poor negatively, creating more poverty instead of less (Boelens & Vos, 2012). The revision of the legislation involved the first arena of maximising technical water use efficiency in irrigation systems. The idea of maximising efficiency threatened local ideas. The irrigation evaluation systems of peasant farmers differed slightly from the engineers' ideas, causing problems for peasant farmers' livelihoods and sustainability. The second arena to increase water productivity was introducing water pricing and marketing. The policy encouraged the re-allocation and saving of water to the most efficient users with high economic returns. Within this arena, different stakeholders might have different views on the benefits, values and costs. The re-allocation of water rights through productive efficiency might not favour both groups of water users and one might be left vulnerable with no access to water, especially small farmers (Swyngedouw, 2004; Castro, 2006; Achterhuis et al., Boelens & Zwarteveen, 2010). The third arena is of an international level, where water is allocated efficiently by trading agricultural commodities. Trading water for producing agricultural products is considered an efficient way to increase global food production (Allan, 1998; Hoekstra & Chapagain, 2008). Therefore, a policy should be a tool to encourage the shipping of agricultural food that is produced in areas with an abundance of water; that is virtual water trading to water-deficient areas (Allan, 2001).

2.3 Policies on access to agricultural water use in Africa

The global movement of water reform caused the African government in the 1990s to consider water reform (van Koppen, 2003). The reform process entailed the formalisation of water rights

which were previously considered under the influence of customary arrangements (Benjaminsen & Lund, 2002; Meinzen-Dick & Nkonya, 2007). The dual system of formal and informal water rights and other natural resources had been practised in many of the African countries, including Malawi. Administrative water rights were then introduced. This meant that smallholder farmers had to obtain water user rights/permits through the WUA to access water for production (Ferguson & Mulwafu, 2004). The government faced a difficult task in facilitating the administrative system since most of the smallholder farmers were poor, illiterate and unfamiliar with the cost involved in paying for water (MacDonald, 2003; Malawi Government, 2005). The smallholder farmers still faced challenges of accessing water, even after joining the WUAs since the WUAs were dominated by wealthier people who advanced their own interests at the expense of the poor (van Koppen et al., 2004; Chileshe et al., 2005; Boelens et al., 2007; Derman et al., 2007). As a result, the drive for policy change in Malawi has not resulted in increasing access to by the poor and other marginalised groups such as smallholder farmers, rather widening the access, which is the direct opposite (Mulwafu, 2010).

Tanzania had the same experience as Malawi in terms of access to water by smallholder farmers. Due to water scarcity, the country went on revising its water policies from customary law and practices, which are currently not recognised in formal legislation while water users needed to get formal water rights (Rajabu & Mahoo, 2008). In the early 20th century, the colonial authority established the Tanzanian water rights system, which guaranteed access to water by the European settlers and diminished water access for smallholder farmers (Lein & Tagseth, 2009). Previous studies indicate that although smallholder farmers acquired their water rights, they still wanted to uphold the customary practice, while large-scale irrigators who adhere to the state's statutory water law, invested in water-related infrastructure to secure access to water (Komakech et al., 2012).

In Zimbabwe, water resources used to be managed according to the 1976 Water Act, which was revised from the 1927 Act. The existing Water Act, together with the traditional water rights, was revised to remove the barriers to decision-making and non-participation in water resources (Kjeldsen et al., 1999). The 1976 Act guided institutions, which prohibited smallholder farmers' access water for agricultural use (Kjeldsen et al., 1999; Manzungu, 2002). To achieve equity in access and management of productive water, Zimbabwe embarked on water reform in 1995. The revision of the 1976 Water Act led to the promulgation of two pieces of legislation, which is the Water Act and the Zimbabwe National Water Authority Act in 1998. It is in these Acts that structures such as catchment and sub-catchment were established on how to access and use water. This led to the introduction of the catchment and the sub-catchment council's representatives (Makurira & Mugumo, 2005). The main functions of the catchment council (CC), amongst others, were to issue water permits and supervise water use as a form of participation and decision-making. Below the CC are the sub-councils whose main

function was to report as per CC requirements on the exercise of water permits in their area (Manzungu, 2002). The new institutions were established six months after the promulgation of the Act with the aim of learning by doing (Manzungu, 2002). Since water institutions were established in 1999, the management has experienced operational problems (Ncube et al., 2010). Some of the problems that the water users encountered included not knowing which institution to consult in need of water. The formalisation of access to water and the creation of institutions created a complex and confusing environment for water users to gain access to water. Water users are referred from one institution to the other. The lack of coordination between water institutions also has affected water reforms and the management in terms of engaging smallholder farmers in accessing water (Mtisi, 2011).

As far as water policies are concerned with access to water internationally, studies have shown that the revision of water policies was to ensure productivity of the peasant farmers, smallholder farmers and native communities who are the backbone of families. In Africa, the revision of water policies and the establishment of water institutions to implement the new policies abandoned the traditional access to water. Numerous strategies were formulated from the experience of people on how water should be obtained. This was to be applied through formal law and also recognised at the local level (Bruns & Meinzen-Dick, 2001). This means that legal pluralism recommends that the authorities' access to water and for what purpose, can all be addressed through national legislation, religious and customary laws, together with unwritten local norms. However, strategies adopted from neighbouring countries to increase the economy have deprived them of their access to water.

Southern African countries have been grasping at international standards on reforming the water sector to accommodate the poor but developing and developed countries face different social, political and economic factors at a local level (Chikozho, 2002). As a result, policy reform has widened access to water by the smallholder farmer than shrinking it. Smallholder farmers still hold-on to their traditional ways of accessing water, lacking resources and working in isolation with no established institutions to improve access to water.

South Africa is one of the African countries that have embraced water policy reform. The country has revised its water policies on access to water for agricultural use to eradicate poverty within marginalised communities (Schreiner & van Koppen, 2002). More than 20 years have passed since the promulgation of the National Water Act No. 36 of 1998, which still benefits previously advantaged individuals (white commercial farmers) more than the historically disadvantaged individuals (HDIs) (poor black smallholder farmers) (van Koppen & Schreiner, 2014a). As far as water policy is concerned, it is not clear why there is still a problem in access to water by smallholder farmers.

2.4 The history of access to water in South Africa

In South Africa, it is difficult to talk about access to water without acknowledging the past policies that ruled water access. The NWA, formulated during the transition from apartheid, was to provide a tool to redress inequality inherited from the past (Kemerink et al., 2011). During the pre-apartheid era, natural resources, including water, in South Africa were publicly owned and free to use for all people. In 1652, when Jan van Riebeeck and the Dutch East India Company arrived in South Africa, a formal system of private land ownership was introduced. As a result, the relationship the Khoisan had with the natural resources was put under pressure. Changes occurred when the Dutch East Indian Company took over the land and water, driving the Khoisan to work for them since they had no access to water and land for their cattle. In 1685, the land was legally granted to the Dutch East Indian Company giving those powers over water sources that ran along with their property; known as the riparian principle (Guelke & Shell, 1992). As a result, the Khoisan's traditional way of life had to shift (Funke et al., 2007).

The Dutch reign ended in 1805 and the British government took over the Cape Colony and started to extend the processes of water, land and institutional reform. The British introduced two main developments that are permanent, the land tenure system and the formalisation of the riparian principle which became part of the policy that ruled in the first decade of the British influence (Duly, 1965). Irrigation and agriculture became the most important focus, leading to the promulgation of the Irrigation Act in 1912 (Thompson, 2006). The 1912 Act did not make provision for industry and other users. In response, the Water Act (No. 54 of 1956) was promulgated, which was the first attempt to regulate the use of public water for all demanding sectors of the economy. The Act focused on supporting the progress of the country's wealthy commercial farming and industrial sector, more than on alleviating poverty in the less privileged rural areas, including smallholder farmers (South Africa. DWAF, 1998; Earle et al., 2005). As a result, the majority of the South African population, especially poor blacks in the rural areas, remain water-poor.

2.5 Approaches to access water in South Africa

The government took a new direction that benefited all South Africans when the democratically elected government in 1994 immediately addressed the past racial discrimination in the agriculture sector. To rectify the racial Act of the past on water policy, a massive reform process occurred aiming to address rural poverty and inequality. The NWA 1998, was enacted to manage water resources. South Africa became the first African country to adopt national water legislation to transform its society in the direction of social and environmental justice (Schreiner & van Koppen, 2002). However, equity is one of the principles that have not received the desired attention since the promulgation of the NWA. This is because the Act did not provide

detailed strategies and approaches to promote equity. As a result, the DWS as a water custodian developed the First Edition of a National Water Resource Strategy (NWRS-1) in 2004 in support of the WAR programme. The NWRS-1, which was used as a water resource management-guiding framework, had to be reviewed every five years in consultation with the stakeholders and be amended to suit the changing circumstances (South Africa. DWAF, 2004b). However, the reviews of the NWRS-1 after five years showed that the central objective, which is equity, was not achieved. To achieve equity, the Second Edition of NWRS (NWRS-2) was developed specifically to give attention to the needs of those who were historically denied access to water (including smallholder farmers) (South Africa. DWA, 2013). The WAR through its strategy was to serve as a link between policy intent for the realisations of the transformation mandated in the NWA and the NWRS (South Africa. DWAF, 2008).

2.6 The National Water Allocation Reform

The national targets for WARs were to allocate 45% of water to the historical disadvantaged individuals, including emerging farmers, in 2019 and 60% by 2024. Of the 60% target, half should be women. The targets were set with the belief that the resources will be channelled to meet the WAR programme's objective (South Africa. DWAF, 2008). However, since the water policies and legislation were advanced in addressing equity in South Africa, the review indicates that there were issues in WAR implementation. Thus far, the goal of equity has not been achieved to correct the imbalance of the past in access to water by the smallholder farmers for productive purposes and the eradication of poverty (Chikozho, 2008; Pollard & du Toit, 2011; South Africa. DWA, 2012; Schreiner, 2013; Movik, 2014). According to Sen (1999: 166), equity is defined as access to a range of freedoms and capabilities established in comparison with those routinely enjoyed by others in a community or globally. Within uses, equity can be interpreted as comparing the quantities of water available to users within a set of farmers, residents or small-business owners. Equity has been adopted by international agencies like the World Health Organisation (WHO) and the Joint Monitoring Program (JMP) as a major goal (World Health Organization [WHO], 2011). The JMP measures water equity through indicators showing the proportion of a population having access to water sources (Goff & Crow, 2014). In South Africa, no part of population has been granted access to water for agriculture since the promulgation of the Act between 1998 and 2008 because applications demanding access to water exceeded the available supply (Msibi & Dlamini, 2011). Only 78 licences to access water had been issued in Limpopo Proto CMA by 2008, which was the highest number of licences for irrigation released in any of the provinces (South Africa. DWAF, 2008; Msibi & Dlamini, 2011). According to Schreiner and van Koppen (2020), out of an estimated 160,000 households requiring water permits, by 2016 only 5,956 permits had been issued to rural households in the whole of South Africa. According to Goff and Crow (2014), water is a prerequisite for life and many types of economic and domestic activity. For all these

reasons, it is appropriate to question the equity of current access to and distribution of water. The review indicated the following as some of the impediments towards WAR implementation.

2.6.1 The perpetuation of the Existing Lawful Water Use

When the new law was promulgated, the government became the custodian of national water management and abolished the riparian law, including homeland governance in access to water. However, two years after its promulgation, the NWA allowed the perpetuation of the Existing Lawful Use (ELU) as the lawful users without recognising the riparian doctrine in the homelands. Access to water in the homelands was controlled by the chief where landholdings were primarily governed under systems of communal tenure (Schreiner & van Koppen, 2002; Movik, 2009). This negated even further the chances of smallholder farmers' access to water.

The Act allowed the perpetuation of the ELU intending to convert to licence gradually (Mackay, 2003). The conversion of ELU to licence caused tension concerning equity and economic productivity in the DWS WAR programme (Movik, 2009). The re-allocation of water could not be done too quickly or haphazardly because the country might suffer economically as smallholder farmers struggled to become productive and had low economic returns (South Africa. DAFF, 2012). Hence, water should be allocated to smallholder farmers that are in urgent need. The misconception of the Act guiding equity was accompanied by the caution of productivity and profitability to the country's economy while delaying the progress of water allocation (Merrey, 2008). There was a fear that the country's economy might collapse, like Zimbabwe, which was presumed by some vocal politicians to be a result of forcefully taking natural resources such as land from the white farmers and giving it to the citizens who were without capable resources to make it productive and profitable (van der Zaag & Rolling, 1996).

The new clause of a riparian water right that was included in the revised NWA in section 32-35 made it impossible for smallholder farmers to have water. As a result, the land resettlement programme by the Department of Rural Development and Land Reform (DRDLR) was a failure as the government was buying dry land for smallholder farmers, with no water available for production (Nortje et al., 2014; Parliamentary Meeting Group [PMG], 2017).

Section 25 of the Constitution in the Bill of Rights emphasises the protection of property rights and only private property for the public interest, but also to secure the land for the blacks (including smallholder and emerging farmers) (Cousins, 2016). Property is afforded special preference in the new Constitution of South Africa. The nature and the scope of section 25 of the Constitution protect the old water law, which gives privileged water users through property the right to continue having the right to use water. Though the protection would not necessarily hinder transformation, it secures the right of the pre-existing water users and limits the State from interfering with any kind of water allocation (Constitutional Court of South Africa, 2009). O'Regan (2005) indicated that to achieve equity, there should be a balance between property

and social transformation. In one of the cases judged in Mkotwana, the author argued that the recognition of private property hinders the facilitation of social transformation. Though the riparian principle has been abolished, its legacy is still embraced by the NWA (Seetal & Quibell, 2005). As a result, 95% of water use is still controlled by 1.2% of the population, which are the commercial farmers, leaving 98.8% of the population of which the majority is in rural areas (smallholder farmers), with less than 5% ownership of water resources (Cullis & van Koppen, 2007). The ELU is firmly established, which is unlikely to change in the policy; therefore, it needs to be validated and verified before the CL can be carried out to make water available (Movik, 2013).

2.6.2 Insufficient information on validation and verification

The validation process entails the confirmation on the amount of water that is currently being used, what has been used in the qualifying period and also confirms the amount which was intended to be used in 2000 (South Africa. DWAF, 2006). Validation involves the confirmation of the amount of water the user was using and verification is to check the lawfulness of the water use (Movik, 2013). The process of validation and verification (V&V) was emphasised to convert the ELU to licences. According to Kapangaziwiri et al. (2017), V&V involves stocktaking of water uses from water to carry waste, impeding or diverting the flow in a watercourse, storage of water and streamflow reduction activities on both the surface and underground, input into a database for water resources management. Over the years, South Africa has strived to manage her scarce resources equitably, not because of apartheid but because of the weaknesses of the legislation promulgated after democracy, which lacks a database for water use and users. The process of V&V commenced in 2003 through the DWS to rectify this situation. However, the authors see weaknesses in the current legislation because it has not created a database that shows the water use and users (Kapangaziwiri et al., 2017).

In conducting the process of validation, models such as LANDSAT, SAPWAT, interviews and site visits were undertaken to estimate the amount of water use. SAPWAT was used to estimate the abstraction of water but the data generated from the model was not uniform (Movik, 2009). In many cases, this process was hampered by the financial burden of the water resource charges and did not provide an accurate picture of the actual water use (South Africa. DWAF, 2006). In terms of validation, to confirm whether specific water use was lawful or not was rendered by the error of land transaction, which made it impossible to determine to which plot the riparian water right was attached (Movik, 2009).

The process of V&V was to allow the freeing of unused and illegal water use. This was a resolution to the water allocation process through CL, particularly irrigation water (Kapangaziwiri et al., 2017). Studies done in the Upper Vaal indicated that the V&V processes are cumbersome. The consultant who was hired to conduct the process indicated that there

was miscommunication and mistrust of information regarding lawful existing water use. Existing water users feared that they could lose their water entitlement. All these factors contributed to long delays in finalising the V&V process (Ginster et al., 2010). In the Oliphant's catchment, studies indicated that V&V has not been performed, which leaves more water in the hands of the commercial farmers than the emerging farmers (Mdhlovu, 2018)

2.6.3 Failure of the compulsory licensing process

CL is a mechanism where the existing water users willingly give the water back to the state and re-apply for water use entitlement, together with potential water users, to achieve water reform as seen in sections 43–48 of the NWA (South Africa. NWA, 1998). This allows for a fair allocation between competing water users in achieving race and gender equity (Anderson et al., 2007). All existing water users have to register their water use and both existing and potential water users have to apply for a WUL. The main aim of CL was to address the historical imbalance in water allocation, to promote access to natural water resources and give water use benefits to smallholder farmers (South Africa. DWAF, 1998). The CL was meant to be a drive to convert the ELU gradually in some specific areas with one or more water resources to establish one uniform water use authorisation system (van Koppen & Schreiner, 2014b). However, studies done in Inkomati-Usuthu, Jan Dissels and Mhlathuze CMAs have shown that the CL processes have not been running smoothly due to the administrative burden at the national DWS (Anderson et al., 2007; Movik & de Jong, 2011; Msibi & Dlamini, 2011; van Koppen & Schreiner, 2014b). Concerns raised indicate that CL alone cannot achieve equity in access to water as smallholder farmers may not have the capacity to participate in the process. Even though the CL process has been slow, some licences have been transferred to smallholder farmers (Movik & de Jong, 2011). Considering that CL has been recommended as a tool to address historical injustice in water allocation (van Koppen & Schreiner, 2014b), the coordination between the sister departments of the DRDLR, Department of Agriculture (DOA) and the DWS, is very weak, despite several programmes that are in place (Nortje et al., 2014; Ncube, 2018).

2.6.4 Lack of policy integration in water institutions

South Africa's Constitution aims to foster cooperation in the water sector for the successful management of water resources (South Africa. DWAF, 1998). Successful management of water demands close cooperation between water sectors from the national, provincial and local governments as well as non-governmental organisations (Karodia & Weston, 2001). The WAR programme was mandated to fulfil the NWA objective of the efficient use of water for the public's interest (Anderson et al., 2008). However, its implementation is very complex and it requires integration with other institutions such as DRDLR and DOA (South Africa. DWA, 2014). Government departments lack alignment. Various departments, such as the provincial Western Cape Department of Agriculture (WCDoA) and the DWS, are focussed on their

mandates and there is no incentive to drive collaboration (Pegasys Institute and International Water Management Institute, 2017). The responsible authorities or water sectors seem to lack the necessary information to effectively implement water reform processes (Chikodzho et al., 2017).

Gorgens et al. (1998) envisaged that the cooperation of government brings challenges in the administration of water and land-use. Greenberg (2010) argues that the water issue cannot be dealt with separately from the land issue. This is supported by the NDP Vision 2030, emphasising that to grow the market of smallholder farmers by 60% in the next decade, the reallocation of water rights to the beneficiaries must be done together with land transfer (South Africa. NPC, 2012).

Although water and land have an intimate relationship in the economy, politics, policies and processes to resolve them remain disconnected (Funke & Jacobs-Mata, 2011; Woodhouse, 2012; Cousins, 2016). The consequences of the separation are now being recognised (Woodhouse, 2012). Hall (2004) indicates that the land reform process missed the opportunity to engage in WAR during its implementation in 2003 when one of the panel members who could have provided information on the land reform process pulled out of the panel. This resulted in the failure of many land reforms precisely because of the lack of water for production (Greenberg, 2010; Nortje et al., 2014). Access to water is not only an issue of the authorisation system in use, rather it is the disconnection between water and land reform processes hindering smallholder farmers from improving their agricultural productivity (Vermeulen, 2018). Thus, the redistribution of water and land to smallholder farmers and potential water users is very slow and remains unresolved (Greenberg, 2010; Woodhouse, 2012).

For the smooth operation of WAR at the regional level, the CMAs were mandated to manage water resources. The processes were to be carried out through their CMS in alignment with broader national goals as stipulated in Chapter 4 of the NWA, which lays the basis for regulating water use (South Africa. NWA, 1998).

2.7 The approach of water allocation at the local level

Following the NWA, CMAs were introduced to manage water resources at the regional level, in collaboration with formal institutions at the local level such as WUAs, to ensure that smallholder farmers had access to water for agricultural use (South Africa. DWA, 2012; Förster et al., 2017). The WUAs are associations incorporated by individuals with related water activity for mutual beneficial water use (South Africa. DWAF, 1998). The CMA at the regional level and the WUA at the local level are the ones who have the authority as to who benefits from the water resource. The institutions were to represent the water users and facilitate the participation of water users, leaving the department to withdraw from its current role of

facilitating water use to that of a regulator, sector leader, policymaker and performance monitor (South Africa. DWA, 2012).

As part of the progressive development of the NWRS, South Africa was divided into 19 Water Management Areas (WMAs) (Kahinda & Boroto, 2009). The first CMAs to be created included Inkomati-Usuthu CMA, formerly Inkomati CMA, followed by the BGCMA, formerly BOCMA, currently in operation (South Africa. DWA, 2012). However, in March 2012 the Minister responsible announced the reduction of CMAs from 19 to 9, which was gazetted in 2016. Reasons for this move included insufficient finance, which hampered the DWA in handling so many institutions and lack of institutional capacity (South Africa. DWA, 2012).

The BGCMA strategy, in alignment with broader national goals, was to increase water allocation for agricultural use to smallholder farmers by 15% by the year 2015, through the issuing of WULs (BGCMA, 2012a). However, there are still large numbers of smallholder farmers who do not have access to water for agricultural use. Previous studies indicated that smallholder farmers within the Breede-Gouritz WMA failed to access water due to lack of participation by the smallholder farmers in WUA (Saruchera, 2008. A study by Ncube (2018) on approaches of the smallholder farmers' participation in water resources management concluded that a lack of coordination by institutions assisting the emerging farmers is one of the factors that hinder farmers in accessing water. Both studies selected a particular area in which a small group of respondents was selected, which is a case study. The method has both advantages and disadvantages. The advantage is that the results from the small group provide a depth of information from a member's viewpoint. However, the findings from the one group cannot be generalised to the other group (Willis, 2014). Very little has been done by the BGCMA in looking at the challenges facing smallholder farmers in accessing water for agricultural use through WULs. Supporting organisations also face challenges in allocating water for agricultural use to the smallholder farmers through the WUL process.

2.7.1 The challenges of water allocation reform within organisations

2.7.1.1 Delays in the creation of catchment management agencies

The establishment of CMAs raised concerns with the DWS staff concerning cost and the delegation of function (van Koppen & Schreiner, 2014a). In 2005, 19 CMAs were proposed, two were established and operational and a further six had been gazetted (South Africa. DWA, 2013). In 2016, the CMAs were reduced to nine, which was a crucial blow for water governance since the CMAs cannot operate beyond the set boundaries. This is an indication that the setting of the decentralised institution such as a CMA and WUA has been a challenge delaying the progress of the NWA (Hattingh et al., 2004; Bourblanc, 2011; Denby et al., 2016; Meissner et al., 2016). The Global Water Partnership (GWP) report states that the successful implementation of water policy and legislation in South Africa is hindered by capacity (Kahinda

& Boroto, 2009). There is a lack of access to resources in areas where resources need to be utilised and lack of cooperation and understanding between the national DWS and the regional offices, which has led to slow establishment of CMAs. The lack of realignment of institutions amongst others is also believed to delay the CMA's implementation (PMG, 2017). Studies indicate that there is a demand for intensive support from the DWS to address existing power relations between CMA, WUA and the NWRS (Faysse, 2004; Garduño & Hinsch, 2005; van Koppen, 2008; Merrey et al., 2009; Karar et al., 2010; Kemerink et al., 2011; van Koppen & Schreiner, 2014a).

2.7.1.2 Different mandates of institution supporting smallholder farmers

According to Ncube (2018), policies of different organisations do not speak to one another in terms of assisting smallholder farmers. The minister of DWAF made water available in the Eastern Cape, Northern Cape and Free State, where lack of support between provincial departments resulted in little if any, water being used by smallholder farmers (Muller et al., 2009; Schreiner et al., 2009). Förster et al. (2017) criticised the institutional collaboration approach as it does not increase distributive justice for the benefit of society. The lack of cooperation between government structures leaves the smallholder farmers less informed on the development happening around their area. Vermeulen (2018) added that there is a significant gap in institutional coordination among government entities on the utilisation of existing capacity, e.g. field officers across departments to promote pro-active application for smallholder farmer's application in the field.

2.7.1.3 Lack of engagement between the established institutions

The NWA provides the DWS with activities to monitor the WUA even though it is controlled by water users. The WUA controls the waterworks and they are the one who decides who should get water and the DWS cannot change these allocations. The formation of the WUA was just a shift from the old IB to include all the water users but still caring the legacy of the existing commercial farmers. This puts pressure on the DWS to have control over water resources (Faysse, 2004). As a result, to achieve equitable water allocation through the participation of all water users in the WUA is unrealistic. Stakeholders such as commercial farmers in the water sectors have vested interests that are difficult and impossible to change (Hickey & Mohan, 2004; Watkins, 2006; Brown, 2013). The interest of powerful stakeholders is always served in the WUA (Roy, 1981).

According to South Africa. DWA (2013), there has been a lack of cooperation between the South Africa Association of Water User Associations (SAAFWUA) and the department to engage in a partnership that has extended to individual WUAs. For the effective and efficient performance of the WUA, SAAFWUA is working closely with the DWA to give support in addressing such challenges. However, the level of communication is not satisfactory (South

Africa. DWA, 2013). Some of the concerns raised from SAAFWUA were that there were no consultations made by the DWA during the policy review. Therefore, the implementation of the policy was opposed due to lack of proper input, the insufficient time frame given to water users and the government taking the decision to implement policy in WUA to exist without consulting stakeholders (South Africa. DWA, 2013).

2.7.1.4 Water scarcity

According to the NWA, the CMAs were to establish the CMS to be reviewed once every five years with the set principle of allocating water to existing and potential water users. The strategy should also guide the water institutions that will be established within the Water Management Area (WMA) to perform their function in terms of the Act. As indicated in BGCMA (2012a), concern in redressing social inequalities is that of water availability. To make water available, the BGCMA has to persuade commercial farmers in the Central Breede WUA to give the water back voluntarily. The strategy further indicates that almost 100% of the water was already allocated in the year 2010. In general, there is a lack of information regarding the amount of water availability.

2.7.1.5 Lack of capacity

The launch of an unprecedented WAR programme in 2005 was to redress inequalities from the past by implementing the new water use authorisation system (DWAF, 2008) to be facilitated within CMA's with the help of the DWS. The CMA relies heavily on the central government for funding and it is impossible to raise funds from water sales to sustain the CMA. The previous study indicated that project within the BGCMA remains incomplete due to the lack of funds that takes longer to be released (Ncube, 2018). According to Vermeulen (2018), CMAs in South Africa are failing to have appropriate licensing processes due to a lack of skills. Thus far, very little has been achieved in terms of issuing licences to the smallholder farmers in the BGCMA.

2.8 The status quo of water user license authorisation

South Africa adopted universal principles that have been proven effective in western countries, which were believed to be active for the country's implementation and for the generation to come. This principle gradually draw people's attention to understanding the potential effect of new water policy and the way in which water is used (Mackay, 2003). The administration of water right through licensing was seen as a core tool for WAR and the most influential in reaching the target of allocating water to the poor including smallholder farmers (Movik & de Jong, 2011). The administration of water use as outlined in Section 22 of the NWA includes Schedule One which allows anyone to take small amounts of water from the water resource without requiring a licence; GA which allows the use of larger volumes of water over and above Schedule One use with minimum impact, ELU, which refers to water uses that has been taking

place prior to 1994. It allows legal continuation of water use in terms of the 1956 ("old" Water Act) altogether with uses that did not require permits, such as irrigation and forestry; and Licensing water use which includes large volumes of water that exceeds the GA volume that needs to be applied for by the applicant and authorised as a licence issued under the NWA (South Africa. NWA, 1998).

All water users that fall under GA, ELU and Licensing have to be registered in Water Authorisation Registration and Management System (WARMS) to get the quantity of the water in use within the WMA. However, the system has been proven to be time-consuming leading to some of the water not registered or registered incorrectly. This was to be rectified through the process of V&V (Movik & de Jong, 2011). The V&V which also maps the water in the WARMS and its technicality process was tasked to a consultant that reports back to the DWS (Movik & de Jong, 2011). The process is known to be technical and requires a lot of information from water users.

To fast-track the process of licensing, the WLU tracking system was introduced in 2007, wherein two officials from two different regions can work on the same application at the same time. However, the process is slow due to a political decision. Water was also set aside by the DWS for the uptake by smallholder farmers in various areas. However, lack of effective collaborating by the water sectors and state support has led to water not being utilised due to the high cost and complexity of irrigation and markets (Hollingworth & Matsetela, 2008; South Africa. DWA, 2013). Although the DWS is a water custodian, it has been facing challenges with water reform, few licences have been released to smallholder farmers since the promulgation of the Act. Between the years 1998 and 2012, 4,284 WULs were issued, of which 1,518 were for smallholder farmers, with 76% for forestry. The total volume allocated to smallholder farmers through licences was 1.6% (South Africa. DWA, 2013).

Licensing was seen as the core tool in WAR and its results are therefore most influential in reaching the target of (re) allocation of water to smallholder farmers (DWA, 2008). However, the progress of WAR has been slow. Limpopo is considered one of the Proto CMA with the total of 78 licence granted, the highest number of licences issued in all the provinces so far since 2008 licences (South Africa. DWAF, 2008; Msibi & Dlamini, 2011). However, the results are unclear in terms of the impact on the ground (Movik & de Jong, 2011). There are severe backlogs in processing water licence applications affecting all industries that use water not only agriculture (Mandlana & Lamola, 2016). It is estimated that of 160,000 households requiring water permits, by 2016 only 5,956 permits had been issued to rural households in the whole of South Africa (Schreiner & van Koppen, 2020). According to Movik and de Jong (2011), several issues have negatively impacted the licensing processes apart from the administrative burden experienced by the department. These are presented next:

2.8.1 Water allocation tied to the land

Water reform processes have been pursued in parallel to other processes such as land reform and agricultural support with insufficient integration between them. The legal system between the institutions appeared to have an opposite mandate (Woodhouse, 2012; van Koppen & Schreiner, 2014b). Smallholder farmers and women who want to access water in remote areas are discriminated against by the disconnection of these policies unless they can access water under a GA or Schedule One.

2.8.2 General Authorisation to promote access of water

The GA was developed as a tool to promote the access of water in support of the WAR (Anderson et al., 2007). People taking up water under the GA may need to register their water use but do not need to apply for a licence. The uptake of water under the GA is applicable to a specific group of people or specific water resources such as the following:

- Non-stressed water management area for small-scale water users (Schreiner et al. 2010);
- The small-scale emerging user who is not ready to apply for a licence;
- The access of a small amount of water by a group of people who are making a greater impact on poverty reduction; and
- The gradual access of water by the poor, parallel to the gradual reduction of use by the ELU (South Africa. NWA, 1998; South Africa. DWAF, 2008; South Africa. DWA, 2014).

However, due to lack of water in many catchments, the current interpretation of GA does not apply and there is no extra water to allocate to the smallholder farmers. According to Schreiner et al. (2010) to make water available for smallholder farmers, water that is supplied to the ELU should be reduced, expedite land reform programme, joint venture in access to water and CL should be practised. Hence, there is little water allocated to smallholder farmers since the promulgation of the Act in the stressed or non-stressed catchment. To worsen the situation, recently, the policy was revised, reducing the amount of water to be accessed, which impedes transformation (Vermeulen, 2018). Under the new GA, the maximum volume abstracted from surface water is 2,000m³ per annum with a maximum abstraction rate of 1 litre per second. As a result, the existing user of GA under the new GA has to apply for a licence to fit within the revised volume of 2,000m³ per annum with the maximum abstraction rate of 1 litre per second (DWS, 2016).

The GA and CL have been considered as the central pillars of WAR (Movik, 2009). The small amount of water has been put aside to be facilitated through the GA for uptake by the smallholder farmers. However, it is not clear if the facilitation and the opportunity have been communicated with the potential water users and to what extent they have made use of it (Schreiner et al., 2009). Stressed CMAs may be hesitant to promote GA's use, while others

simply do not have adequate awareness about the opportunity of using the GA (Vermeulen, 2018).

2.8.3 Smallholder farmers joining water user associations

The 1956 Water Act excluded the smallholder farmers from participating in water management and they were overpowered by the commercial farmers because they had limited resources and financial support. The transformation post-1994 was to enable better participation by the smallholder farmers in the management of water resources (Seshoka et al., 2004) and to provide the basis for undertaking some initiative for integrated local management of water resources (Karodia & Weston, 2001; Seshoka et al., 2004). The smallholder farmers that are in the WUAs though do have water rights as compared to commercial farmers, smallholder farmers do not get water daily (de Lange, 1994). Studies still show that smallholder farmers are still excluded in decision-making within some WUAs, some of the reasons are that the former IB was used as a starting point and that gave commercial farmers power to remain in control of the process as they are still at the forefront of decision-making (Kemerink et al., 2013).

A study conducted by Förster et al. (2017) in the North West province indicates that successful WUAs are dominated by white commercial farmers. A similar study conducted by Faysse (2004) in Mpumalanga, the Great Letaba WUA in Limpopo Province, the Lower Olifants WUA in the Western Cape and KwaZulu-Natal indicated that for smallholder farmers to be included in the WUAs they must either be willing to pay or be situated upstream where their water quantity and quality is affected (Faysse, 2004). Freguin-Gresh et al. (2012) argued that programmes and other attempts by government and development agencies have actually exacerbated the difficulties that smallholder farmers face. A lack of available systems also hinders smallholder farmers from tapping into the various opportunities presented by government institutions (Moloi, 2010; Ayinke, 2011; Chikazunga & Paradza, 2013).

2.9 Summary

Globally, the introduction of administrating water use has undermined access to water especially the existing users who are the indigenous people of the natural resource and the backbone of the community towards poverty alleviation. The peasant demanded to uphold their traditional way of access to the water together with state law. Due to a lack of technology to make water efficient, indigenous law was overruled and overpowered by people with knowledge, the power to adhere to the state regulation. The indigenous lost access to water and the state considers efficiency to uphold the economy of the country by granting access to mines who have a high economic return. In Africa, the administration of water use was introduced to due to previous water laws that prohibited smallholder farmers to access water for agricultural use. The reform of water law introduced institutions such as WUA as a system

to assist smallholder farmers to access water. However, smallholder farmers are unfamiliar with the system and some institutions experience problems in operation. South Africa's introduction to water reform was of no difference with other Southern Africa countries. The aim was to ensure equal access to water white commercial farmers and HDIs. However, the bulk of the water remains more accessible to white commercial farmers than to HDIs.

Previous studies by Saruchera (2008) and Ncube (2018) identified the exclusion of smallholder farmers in WUA and lack of coordination by the institution that supports smallholder farmers as a hindrance for smallholder farmers to access water for agricultural use. Very little research has been done on WULs as one of the challenges that hinder smallholder farmers to access water for agricultural use. The following chapter (Chapter 3) details the background of the study area and how the theoretical framework is applied for data collection in Chapter 4.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter is an overview of the research design of the study and begins by describing the research design and the study area. Sampled population and methods of data collection utilised in the study are also described. For data collection, this study applied document reviews and one-on-one interviews. This chapter also describes how the data were analysed to achieve the objectives of the study.

3.2 Research design

The research design is the overall plan connecting the relevant concept to the research problem (van Wyk, 2012). A case study methodology was used in this study to closely examine the data within a specified context. A limited number of individuals within a specific or small geographical area were selected as the subject of the study (Zainal, 2007; Hossien et al., 2012). A case study is a study a particular subject that is unique and singular (Simons, 2009). This method is used for questions that seek an explanation of present circumstances and for an extensive and in-depth description of the social phenomenon of the selected case study (Yin, 2014). The disadvantage of this method is that, according to Denscombe (2007), the method is known to produce a soft result that lacks validity and cannot be reliable. To validate the data, the results from the project conducted by Ncube (2018) in the BGCMA from early 2014 until the end of 2019, from which this research emanated, provided opportunities to triangulate some of the findings. The researcher attended more than five roadshows as an observer and also in participatory role. The project conducted 11 farmer-information roadshows between 2016 and 2019, together with smallholder farmers and BGCMA officials. Officials and farmers were interviewed as part of the project to acquire the data. For this study, interviews were conducted with the WUA and non-WUA smallholder farmers, organisations who support smallholder farmers, including the BGCMA officials, and the WUA representatives.

Quantitative and qualitative research designs are both applied to discover the problem. In quantitative research, the phenomenon is described and measured and it further maximises objectivity by using numbers, statistics, structure and control (McMillan & Schumacher, 2010). In qualitative research design, data are gathered in naturally-occurring phenomena. The data are gathered mostly in word form rather than in numbers. A variety of methods can be used in a qualitative design until a deep understanding of the phenomenon is achieved. Qualitative research design can be achieved by focusing on individual life experiences, a case study in a society and some critical studies (McMillan & Schumacher, 2010). The difference between the two designs is the type of conclusion that can be drawn from the results. In qualitative research,

the conclusion is drawn based on the weight of the views of the participants, while in quantitative research the results are statistical and can be precisely measured (Surbhi, 2017). The collection of data is one of the dimensions used in conducting research. Several sources can be used from which to gather data, including focus groups, the Internet, documents, field notes, recorded social interaction or interviews and questionnaires (Kajornboon, 2005). According to O’Leary (2004) and Surbhi (2017), no one method that is better than others in data collection. Therefore, the adopted method in data collection depends on what the researcher wants to discover in conducting the research and the advantage and disadvantage of each method.

The qualitative method was applied in this study. The Policy Implementation Framework (Smith, 1973; van Meter & van Horn, 1975; Khan & Khandaker, 2016) that is applied in most qualitative studies was applied and the model is known to minimise the disruption of policymakers, which can cause policy results to fail to match policy expectations (Smith, 1973). According to Khan and Khandaker (2016), successful policy performance can be achieved through the application of these models or standards to overcome issues. A model of policy implementation process consists of components that are an ideal definition of the policy, implementing organisation, target group and environmental factors/politics (Smith, 1973; van Meter & van Horn, 1975; Khan & Khandaker, 2016). The thematic analysis method in Atlas.ti Windows 8.1 was used to categorise and analyse the data from the interviews to achieve the outcome of the policy implementation model.

3.3 Study area and study site

3.3.1 Location and the description of the study area

The study area is located in the Western Cape Province of South Africa under the Breede-Gouritz WMA. Two district municipalities were selected—the Overberg and Cape Winelands districts. In the Overberg, the specific selected areas were Botrivier, Grabouw/Elgin, Genadendal and Villiersdorp. In the Cape Winelands, the specific selected areas were Robertson and Worcester. The study areas are illustrated in Figure 3.1.

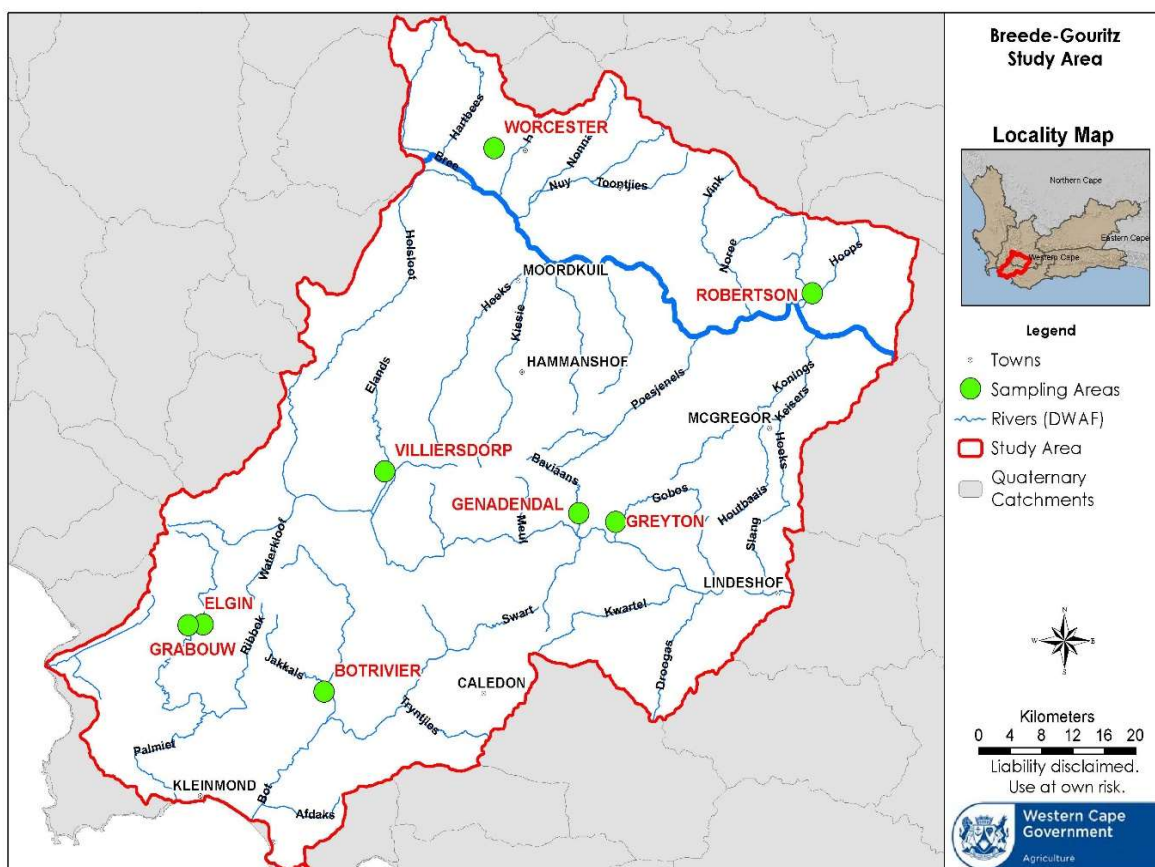


Figure 0.1: Location of the study area where data were collected

(Western Cape Government (WCG), 2017)

3.3.2 Vegetation and land use

The Cape Winelands is dominated by the Fynbos biome, which constitutes 42% of the vegetation and Renosterveld, which constitutes 22% of the vegetation, as well as the Succulent Karoo biome which constitutes 28% of the area. The Fynbos biome and the Succulent Karoo biome are recognized as global biodiversity hotspots with high levels of plant diversity and endemism (Midgley et al., 2008; van Wyk, 2010). The Overberg district is dominated by agricultural activities. Cereal crops such as wheat and barley were grown by commercial farmers, which have been replaced by oilseed crops such as Canola (South Africa. DEAT, 2001; Leeuwner et al., 2003). Through partnering with commercial farmers, some smallholder farmers are also experiencing success stories in grain farming (South Africa. DAFF, 2013). Previously, a wheatland fallow system was practised which was later replaced by the wheatland pasture system and the dryland pastures replaced with cereal crops. The pastures are used to graze sheep, cattle and ostriches (South Africa. DEAT, 2001).

3.3.3 Topography and geology

As shown in Figure 3.2, the Overberg forms part of Cape Fold Belt consisting of a parallel band of quartzitic sandstone. The undulating shale valleys separating the Table Mountain were laid and deposited approximately 450 million years ago and the mountain is estimated to have been formed 200 million years later. The geological condition of the Western Cape and the Overberg landscape has remained unchanged for the past 65 million years (Mustart et al., 1997; Bargmann, 2005). The soil type in the western Overberg is sandy, infertile, acidic and easily blown by the wind. Most of the soil is derived from the sandstone-dominated geology (Mustart et al., 1997; South Africa. DWA, 2011). However, both the Overberg and Cape Winelands share the same geology (Bargmann, 2005).

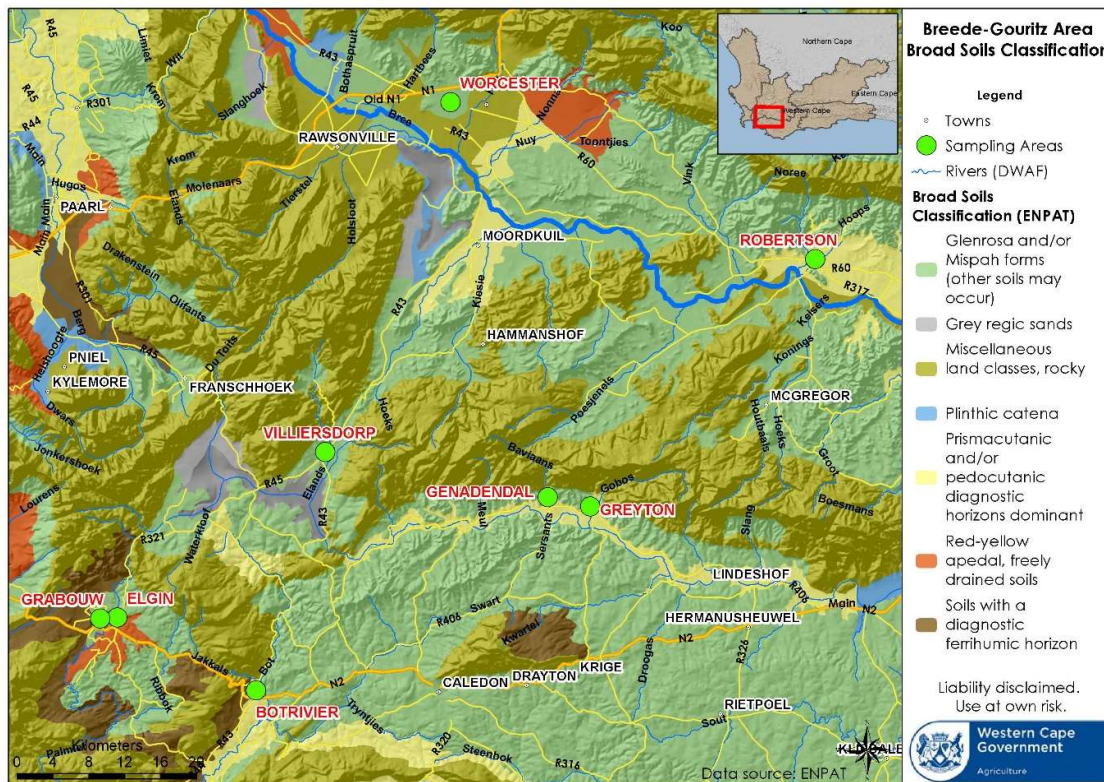


Figure 0.2: Geology of the study area
(WCG, 2017)

3.3.4 Climate

Winter rainfall dominates the Overberg in the west and non-seasonal in the east. The area experiences westerly winds, which cause cold fronts accompanied by rain in the west. During the summer season, the east of Cape Agulhas receives summer showers (South Africa. DWAf, 2007). Approximately 70% of rainfall occurs in winter, spring and early autumn. In

summer seasons the temperature can be as high as between 20-30°C and 12-18°C in winter (Mustart et al., 2003). The climate in the Cape Winelands is hot with low rainfall. The breeze and fog from the Indian Ocean make the areas in the south-east between Robertson and Bonnieville cool. Due to low rainfall received in the region, access to irrigation water is very important (Bargmann, 2005).

Irrigated agriculture such as wine, grapes and dairy, deciduous and livestock are the primary economic activities. These activities are the major users of water in the Breede-River catchment (WCDoA, 2016). However, water scarcity in the Breede-River catchment could severely impact the agricultural industry and subsequently hinder the economic growth of the area. The rise in temperature has increased the levels of evapotranspiration, which affects the amount of water available, particularly for agriculture in the Western Cape. The best management practices need to be implemented. This means a major shift by farmers to use water more efficiently in high-value products such as table grapes (BGCMA, 2017; Western Cape Government, 2017).

The study area was selected based on the assumption that the BGCMA is one of the areas where smallholder farmers do not have access to water for agricultural use (Trust for Community Outreach and Education [TCOE], 2013). The study area was also selected because there are limited studies that have been conducted on the challenges that WUA and non-WUA smallholder farmers face in accessing water through the WUL application process in the BGCMA.

3.4 Data collection methods

3.4.1 Review method

A review method is a way of collecting data by reviewing existing documents or previously collected data to generate other reports, papers or research (Kaufman & Triner, 1996; Centers for Disease Control, 2018). These may include a hard or electronic copy of the report, meeting minutes, programme logs, newsletters, performance ratings, funding proposals and marketing materials from government and non-governmental organisations (Centers for Disease Control, 2018). The advantage of document review is that it saves the researchers time, rather than collecting data on their own. The disadvantage of the method is that the data provided may not represent the outcome of the data needed and it is time-consuming (Snyder, 2019). It is therefore recommended that a researcher develops a list of characteristics that are being searched for in existing records (Kaufman & Triner, 1996). Documents were reviewed to explore whether the strategic intent of the national WAR and the BGCMA strategy have managed to achieve equity in terms of allocating water to the smallholder farmers.

3.4.2 Interviews

Akbayrak (2000) defines an interview as a verbal conversation method used by the interviewer to ask serious questions on how one feels, to obtain information from the respondent. Kvale (1996; 2006) defines interview as a method that allows the researcher to obtain in-depth narrative information about people's views, while Berg (2007) adds that the interview enables interviewees to speak and express their thoughts and feelings. The interview has been used in different subjects across the world to allow the participants to give an open response to questions, rather than merely a "yes" or "no" type of answer. The method allows discussion on personal issues that the respondent might not be comfortable or refuse to discuss in a focus group (Longhurst, 2010).

The interview method was used to collect data from eight key informants from the BGCMA, WCDoA, the Chief Executive Officer (CEO) of the Groenland WUA, as well as 10 non-WUA smallholder farmers and two from the WUA. The officials were interviewed on their experience in WUL application processing, how they implement the water allocation programme, their target group in the process, their coordination with other organisations and the challenges they faced in implementing the policies and strategies of allocating water to smallholder farmers. For the smallholder farmers, the questionnaires were designed to gain an understanding of their farming background, type of agriculture practice, water sources and quantity, their understanding of water policy, the supporting organisations and the challenges faced in accessing water through the WUL process. The disadvantage of the interview method is that it is time consuming. Most participants may quit the interview, resulting in biased data (Akbayrak, 2000; Keller & Conradin, 2010). Another disadvantage is that some respondents may fail to answer some of the questions due to a language barrier (Letts et al., 2007; Harrell & Bradley, 2009). For this study, interviews were conducted between 30 July and 2 August 2018. Following the interviews, the Policy Implementation Framework implemented by organisations was used for the collection of data. Three different languages are spoken within the study area—Afrikaans, English and isiXhosa. To overcome the language barrier, an interpreter was available during the interviews.

3.4.3 The Policy Implementation Framework

The study applied the Policy Implementation Framework (Smith, 1973; van Meter & van Horn, 1975; Khan & Khandaker, 2016) that has been used in different qualitative studies for different research purposes. In developing countries, it has been used mostly to identify various challenges faced by the government in the implementation of public policies, particularly at a local government level (Xabendlini, 2010). It has also been used in studies to explore and compare policies aiming to improve health and social care (Strehlenert et al., 2015). The

framework has been further used to analyse the effectiveness of policy implementation and to address disaster risk, specifically focusing on drought management (Pradhan et al., 2017). Successful policy implementation consists of four concepts of ideal definition of the policy, organisation, target group and environmental factors. These concepts are illustrated in Figure 3.3 (Smith, 1973; van Meter & van Horn, 1975; Khan & Khandaker, 2016). The applications of these standards are known to overcome issues, leading to successful policy performance. The selected approach of policy implementation used in this study employs a qualitative approach and requires a qualitative method to understand the policy, organisation and smallholder farmers.

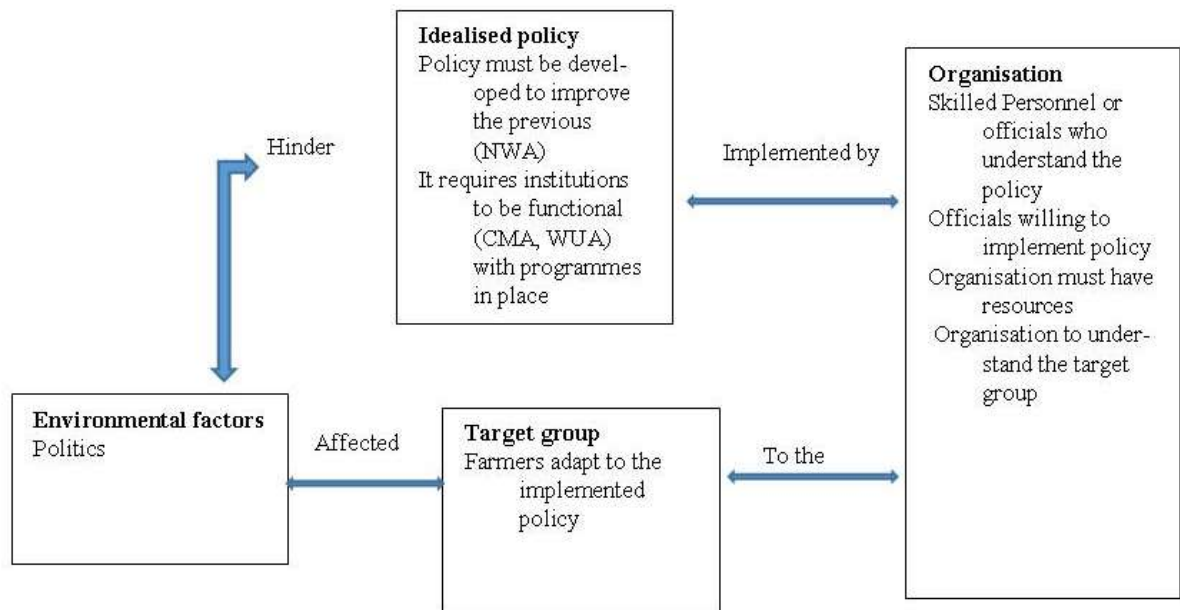


Figure 3.3: Policy implementation framework

(adapted from Smith, 1973; van Meter & van Horn, 1975; Khan & Khandaker, 2016)

The ideal definition of a policy refers to the clarification of goals, targets and objectives that give detailed planning, techniques and procedures required to enable implementers of the policy to define the scope of their responsibilities according to the policy objectives (Khan & Khandaker, 2016). The national WAR sets targets to achieve an allocation of water and develops programmes to help in achieving the targets. Organisations such as CMAs and WUAs develop their targets as well which are intertwined with the national policy to be implemented at the local level to assist in achieving the main target. In cases where the policy cannot be implemented by the organisation, the policy should be revisited to see where adjustments could be made to achieve success. The information on the targets set by policy and programmes were collected through document review.

The organisational concept refers to the institutional set-up that governs and manages water, based on strategies and programmes established by the government (Jordan, 2005; Abdullaev & Mollinga, 2010). Policies are implemented by organisations, which comprise units and governmental bureaucracy (Smith, 1973; Khan & Khandaker, 2016). The performance of an organisation depends on the availability of resources and the capacity of skills in leadership. The organisations also encompass coordination and commitment of staff that comes directly into contact with people and other stakeholders and the place of the organisation as the implementation infrastructure (Khan & Khandaker, 2016). For the organisation to implement its programme of allocating water through WUL, there should be availability of resources such as finance and skilled officials to perform the duty. In cases where the organisation fails to achieve its targets, the organisation should revert to the policy and some adjustments need to be made for an organisation to achieve the targets and vice-versa. The data from the organisation were gathered by interviewing government officials who give support to smallholder farmers. The data help in identifying the challenges faced in supporting smallholder farmers with their agricultural activities, specifically access to water.

The target group refers to the individuals that the policy is intended to affect (Smith, 1973; Khan & Khandaker, 2016). Target groups are often changed to meet the demands of the policy (Smith, 1973), such as smallholder farmers and emerging farmers who need to understand the policy and how it applies to them. The organisation applies strategies of water allocation to the emerging and smallholder farmers. On any issues that farmers encounter during the implementation of the strategies, they revert to the organisation and the organisation gives feedback on how the issue will be addressed to achieve successful water allocation. The data on smallholders and emerging farmers were collected through interviews.

Politics refers to those factors that can influence the implementation of the policy, factors such as different cultures, social dynamics, political and economic conditions (Smith, 1973). Khan and Khandaker (2016) referred to them as outside environmental factors that bring interaction between organisation and representative, bargaining power and social perspective. Social and political power in decision-making still plays a major role through the old riparian law of ELU. For such a policy that upholds power and jeopardises the smallholder farmers, an opportunity to access water as equally as the commercial farmers should be revisited and feedback given to the policy for successful water allocation.

3.5 Selection of respondents

According to Palys (2008), there is no best sampling strategy in research. What is best is determined by the context the researcher is working on and the objective of the research. For this study, a purposeful sampling method was used where participants were non-randomly selected and linked to the objective of the study. A snowball sampling method was employed,

whereby existing participants referred the researcher to other participants (Atkinson & Flint, 2001). This method is effective for sampling members that know each other and groups that are not possible to reach. According to Volz and Heckathorn (2008), this method does not require a sampling frame and is very effective for groups that are difficult to reach. Biernacki and Waldorf (1981) opine that the method is useful for various research purposes, especially in research that focuses on sensitive issues that require knowledge of an insider to select respondents. The disadvantage of the method is that the researcher cannot sample the respondents randomly as they are selected through referral sampling. As a result, the selection might be biased, limited to proximity and relationships (Heckathorn, 2002). To avoid bias in the selection of the key respondents, the selected ones were met during the roadshows that were conducted within the BGCMA under previous projects. The participants were government stakeholders that support smallholder farmers with water access and agricultural activities and smallholder farmers that receive support from the government for their agricultural activities, including access to water through WULs.

With regards to the organisations that support smallholder farmers, BGCMA officials working closely with the smallholder farmers were interviewed, together with other departments that work with the BGCMA in supporting the smallholder farmers, being the WCDoA and Groenland Water User Association (GWUA). The justification was to see how organisations that support smallholder farmers work together in ensuring that smallholder farmers are allocated water for agricultural use and the challenges that they face in supporting smallholder farmers concerning policy implementation. The original design was to interview five officials from BGCMA, two from DRDLR and WCDoA and one chairperson from each WUA in the Cape Winelands and Overberg district municipalities. However, the DRDLR and the chairperson from one of the WUA were unwilling to be interviewed. From previous experience in Ncube's (2018) study, the DRDLR officials were invited on more than one occasion to give a presentation at roadshows and explain how their support can assist emerging farmers to access water. However, this endeavour was not successful. For the current study, the researcher called several times but officials persistently referred the researcher to other officials, until time constraints forced the researcher to continue the study without input from the DRDLR. The DRDLR's understanding of water allocation is different, hence they work in isolation and refused to be interviewed. Furthermore, the chairperson of the WUA felt that it was not his responsibility to answer on behalf of the farmers though it was explained clearly that the interview would be about how the organisation conducts its water allocation. This situation also gave the researcher no option but to continue without the input of the WUA chairperson.

A total of 12 smallholder and emerging farmers were interviewed. Of the 12, two were part of the WUA. The initial aim was to interview 30 smallholder farmers, 15 from WUA and 15 non-WUA smallholder farmers. This would enable the researcher to compare the challenges facing

both groups in applying and accessing water through a WUL concerning the policy implementation framework. However, some smallholder farmers were also unwilling to be interviewed.

3.6 Thematic data analysis

Thematic analysis is a method that identifies themes and patterns of important or interesting data. The themes are used to address the research or say something about an issue. It is widely used in qualitative research although it is not named as an analytic method such as narrative and grounded theory analysis. The advantages of thematic analysis compared to other methods include flexibility and detailed analysis of data. The method is widely used for exploring, explaining and designing a framework and categorising the research for the inquiry. The disadvantage of the method is the limited interpretation of the meaning of data if it does not follow the existing framework that has identified themes (Braun & Clarke, 2006). To overcome the disadvantages of the method, proper planning and design of interviews was done before the interviews were conducted.

Themes were designed for the study using the concepts that were refined from the policy implementation framework (ideal definition of a policy, organisation, target group and politics). The themes were used to assess the challenges that BGCMA faces in allocating water to the smallholder farmers and that of the smallholder farmers in applying for WULs to access water.

After the interviews were conducted, the data from the interviews were transcribed into written form and the document was added into Atlas.ti Windows v8.1, to visualise, comment and code the data in the document from the interviews. Atlas.ti consolidates various data types from text, videos, pictures and verbal data and enables the researcher to identify features of interest from the data (Reissman, 1993; Gibbs, 2007). The software has been considered in various qualitative studies such as Fielden et al. (2011), looking at children's understanding of obesity, a thematic analysis. Hence, the study adopted the method where individuals were recorded for interviews as a method of collecting data. The output from the data was themes of a network, which visualise the linkages or relation between the data. The linkages of the data were interpreted as images and in a narrative form. The second stage involved proofreading of the data for the researcher to become familiar with the data. The third stage was to generate initial codes from the data. Codes identified features of the data that the researcher considered pertinent to the research objective. The coding also enables a holistic analysis of codes as it allows a combination of related codes, which lead to larger concepts, and also analysis of the relationship between codes. Codes were generated based on the points of interest within each theme. For example, in an organisation, the interesting features were on organisational coordinating and communication with the emerging farmers. After codes were generated, the

data was converted into thematic network output for better analysis and interpretation. The data were interpreted in a narrative form directly from the individuals' responses.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter analyses and presents the results of the study, divided into three sections. The first section reviews and discusses the national WARS and the Breede-Gouritz CMS. The second section discusses the results from interviews conducted with organisations that support smallholder farmers with their agricultural activities and the allocation of water through WULs, while the third section discusses the results from the interviews conducted with the WUA and non-WUA smallholder farmers. The results detail the challenges smallholder farmers face in accessing water through WULs and those faced by the BGCMA in allocating water to smallholder farmers. The chapter concludes with the outcomes of the policy implementation framework. Whilst there are other productive uses of water that can be addressed by WAR, this discussion focuses on water for agricultural use.

4.2 Results and discussion

4.2.1 The national water allocation process

The WAR emphasises that access to water should be of beneficial use (South Africa. DWAF, 2008) and is centred on two main categories of users, which are the ELU and HDIs, including smallholder farmers. “Set aside” is a process whereby water that is recovered through the implementation of water conservation is legally set aside for allocation to HDIs (Msibi & Dlamini, 2011) and GA were the mechanisms proposed to make water available for uptake by smallholder farmers for productive use. However, less attention was paid to the distribution of water primarily as a productive resource (Movik, 2013) posing inequality, especially to smallholder farmers

Exacerbating the inequality in access to water was the ELU provision, which sought to bridge the previous and current water Act. The principle allowed the existing water users to continue for two years before the commencement of the National Water Act No. 36 of 1998, to be replaced later with a WUL (Anderson et al., 2007). However, the new water law could not be introduced immediately, considering that white commercial farming is the mainstay of the economy (Movik, 2014). The existing lawful water rights remain legal until transferred to a CL at a later stage (Kidd, 2016) but unfortunately this has not happened. According to Méndez-Barrientos et al. (2016), white commercial farmers will remain dominant and hold the upper hand due to their superior knowledge of water management and the ability to use legal and financial services. These have caused the implementation of water reforms to remain unchanged. When the WAR document was drafted (South Africa. DWAF, 2004b) there were three extensive guidelines:

- ELU will only be explored or considered as the last resort to make water available to the smallholder farmers after all other means have been exhausted.
- ELU will not be considered unless the potential water users, which are the smallholder farmers, give an indication of programmes and plans in place to use water productively.
- No existing lawful consumptive user of water will be completely taken away.

These guidelines on existing water use define the whole process of water re-allocation (Movik, 2014; Denby et al., 2016). The ELU is still defined as legal by the Act. Therefore, those who want more access to water are incapable of fighting for water that is used legally (Denby et al., 2016).

The final version of WAR was published in 2006. CL was to be carried out in three piloted CMAs, which are Jan Dessels, Mhlathuze and Inkomati-Usuthu (Anderson et al., 2008; Movik & de Jong, 2011; Msibi & Dlamini, 2011; Movik, 2013). The processes of CL were to start by verifying and validating the ELU. However, there have been complications in getting the accuracy of the water abstracted based on models of crop-water requirements. There was a lack of clarity in terms of the status of the riparian water rights since the land that was bought and sold off by the DRDLR was merged with the existing land. This resulted in the cumbersome reform process (Anderson et al., 2007; Muller et al., 2009; Movik & de Jong, 2011; Movik, 2013; van Koppen & Schreiner, 2014). Concerns have been raised that CL alone cannot achieve equity in access to water as smallholder farmers may not have the capacity to participate in the process. Even though the CL process has been slow, some licences have been transferred to smallholder farmers (Movik & de Jong, 2011). The processes have been very slow and similar challenges have been discovered in all the CMAs, being lack of financial resources, lack of skills and training in a specified field of work, lack of access to resources in areas where resources need to be utilised and lack of cooperation and understanding between the national DWS and the regional offices.

Several mechanisms, such as set-asides, where water recovered from illegal use and conservation from verification and validation process in the stressed catchment was to be allocated to smallholder farmers to enhance access to water, were also put in place. These include a 2,000ha set-aside by the old government in the Mhlathuze Catchment, a 800ha set-aside in the Blyde irrigation area by Minister Asmal and a further 12,000ha set-aside in the Orange River. However, several factors slowed the process, including the setting aside of water in areas where the beneficiaries have no access to land (Schreiner et al., 2009). Due to financial problems related to land and agriculture, a small portion of land has been successfully transferred (Muller et al., 2009). Potential water users missed the opportunity to apply for water because they were not aware of these opportunities. Water delivery infrastructure has proven to be a challenge on some occasions, as well as the failure of the provincial departments of

Agriculture to support the uptake of set-aside water for smallholder farmers (Schreiner et al., 2009). According to Chikozho et al. (2017), authorities responsible for water allocation processes appear not to possess the requisite information to ensure effective implementation in the water sectors. There is also a lack of partnership between the departments at the local level, especially those that deal with land and agriculture.

To support water allocation, GA was examined as a tool to promote uptake of water by smallholder farmers. Initially, the DWAF considered GA as a temporary entitlement to uptake a small volume of water until a licence is formalised (Anderson et al., 2007). There has been a change in that the category GA can now be used to relieve the administrative burdens of applying for a licence in areas with sufficient water and as a tool to achieve redress and making water available to small water users, including smallholder farmers (DWAF, 2012; van Koppen & Schreiner, 2014; Pegasys Institute and International Water Management Institute, 2017). The GA allows a specified volume of water to be abstracted underground or on the surface by any person without a licence in an identified quaternary catchment area across the country as long the minimum requirements are met (Anderson et al., 2007; van Koppen & Schreiner, 2014; Chikozho et al., 2017). In areas of sufficient water resources, the volume was expected to be, for example $2.5 \times 10^5 \text{ m}^2$ (25ha), of irrigated agriculture (DWAF, 2012). However, this is not the case with the current GA except in some relatively unstressed catchments. In 2016, the GA was revised for stressed catchments to a volume that is lower than Schedule One. Under the new GA, the maximum volume of abstracting surface water is 2,000m³ per annum, with a maximum abstraction rate of 1ℓ (litre) per second (DWS, 2016). This criminalises the smallholder farmers who were using water under the previous GA and it impedes transformation of the water sector (Pegasys Institute and International Water Management Institute, 2017; Vermuelen, 2018) and which also affects smallholder farmers (Vermuelen, 2018). Smallholder farmers do not need to hold legal papers to have a GA; however, the lack of GA documents restricts the farmers when it comes to applying for loans to support the expansion of production from banks such as the Land Bank. An appropriate letter is required to save the bank time and money associated with verifying the water resources (van Koppen & Schreiner, 2014b).

4.2.2 Water allocation in the Breede-Gouritz Catchment Management Agency

The BGCMA is guided by the DWS WAR process and the national strategy to develop the CMS that is suitable for its area of jurisdiction (BOCMA, 2010; BOCMA, 2012). The CMS guides water resources management to redress social inequality, giving priority to water re-allocation (BOCMA, 2010; BGCMA, 2012a). The BGCMA has and is still assisting the DWS with water licence applications in its area of jurisdiction, especially for smallholder farmers. It also assists in water resource planning and management issues in various water forums,

including the WUA (BGCMA, 2012a). According to the strategy, it was proposed that 15% of agricultural water should be allocated to smallholder farmers by 2015. This was to be achieved through water licence applications within its WMA (BOCMA, 2010; BOCMA, 2012) and working in partnership with other departments such as the DRDLR and the WCDoA to ensure water allocation (BOCMA, 2012). Studies were also initiated to support future decisions regarding water management in the area (BOCMA, 2012).

4.2.2.1 Backlog on licence applications and water availability

The BGCMA started with the process of registering water use in 2003 and in October 2012 gained access to the Water Use Registration electronic system. Any water use of 10,000m³ groundwater and 50,000m³ surface water required registration. The storage of the harvested water also needed to be registered, except for rainwater harvesting. The process of registration is complex and time consuming and most of the applicants do not understand it. Due to a lack of information, the registration processes tend to be inaccurate, leading to the introduction of the verification and validation (V&V) process to rectify the situation. The V&V is used to verify the amount of water used by various users and to map overall water use in the CMA, including unlawful water use, and compares it with the registered water use of a particular user. The process is mainly technical and uses satellite imagery and various databases that include WARMS. In the BGCMA, the process was initiated in May 2011 conducted by Aurecon South Africa (Pty) Ltd. However, the company did not complete the assessment, therefore BGCMA appointed BKS (Pty) Ltd to complete the process (BOCMA, 2012). The BGCMA noticed that the process prescribed by the DWS was not accurate; therefore, the CMA introduced other methods, which included the use of the Geographic Information System, satellite imagery, field surveys and other methods to improve the accuracy of the process. The SAPWAT model was then used to calculate water use per property. The process was difficult and complex, hence the CMA opted for a standardised method to calculate values per quaternary catchment (BGCMA, 2012).

The BGCMA now has approximately 2,500 registered and invoiced water users using the abovementioned methods. Approximately 70% of the registered water users are willing payers. However, the BGCMA has no access to the WARMS database and are therefore unable to identify those who are not paying. The BGCMA is also aware that some water users are still not registered in the system. To ensure that all users are registered, the CMA facilitated the WUA application between applicants and Regional and National Water Use Authorisation Application Assessment Committees. The CMA collaborated with the Western Cape Regional Office and held three workshops in areas under the BGCMA to raise awareness and to assist in various challenges regarding water licence application (BOCMA, 2012). It is still difficult for the BGCMA to have an accurate amount of water available. By 2010, it was reported that

almost 100% of the water in the area had already been allocated. Lack of water availability is a major challenge in the CMA.

4.2.2.2 Sustainability

Sustainability is a major concern in the BGCMA. The CMA relies heavily on the central government for funds since the revenue from water sales is insufficient to sustain the CMA. The central government's late release of funds delayed the implementation of some aspects of the project on the ground which led to the termination of some projects (BOCMA, 2012). The same problem persisted in the Inkomati-Usuthu CMA and has weakened the credibility of the government on water re-allocation (Peters & Woodhouse, 2019). The CMA has relied heavily on funds from bilateral aid on a fixed-term project (Woodhouse, 2012). Some of the funders were the Department for International Development (DFID) United Kingdom, funding for analysis of satellite images used to verify irrigated crop areas. The funds have contributed to the existence of IUCMA during the first decade (Peters & Woodhouse, 2019). To confirm if the reviews from the strategy are happening on the ground, the supporting organisations working in partnership with the BGCMA in allocating water to the smallholder farmers, together with the BGCMA, were interviewed to understand the challenges faced.

4.2.3 Organisations supporting smallholder farmers

This section provides results and interpretation of the data collected during interviews with the organisations that support smallholder farmers with their agricultural activities, including access to water. Officials that work closely with the smallholder farmers were interviewed. The section gives a brief description of the profile of the government officials interviewed and their roles in assisting smallholder farmers, the roles of organisations and then presents the results from the interviews and the discussion.

4.2.3.1 Profile of the officials

Table 0.1: Profile of the officials

Official	Organisation	Years of experience in assisting smallholder farmers in accessing water
Official 1	BGCMA	30
Official 2	BGCMA	7
Official 3	BGCMA	8
Official 4	BGCMA	2
Official 5	BGCMA	7
Official 6	WCDoA	10
Official 7	WCDoA	10
Official 8	GWUA	15

A total of eight officials from three different organisations were interviewed. The gender split of the interviewees was five males and three females. The roles of the officials complemented each other in terms of giving support to the smallholder farmers, including access to water through WULs.

4.2.3.2 The role of the officials within the organisations

The BGCMA works in partnership with WCDoA, DRDLR and WUAs in assisting smallholder farmers to access water for agricultural use. Although the organisation does focus on the assessment of different authorisation of water use, water allocation for agricultural water use that gives support to smallholder farmers is a priority.

Official No. 1 plays the role of a recommending authority on the board within the organisation, assisting with the processing of applications, for the DWS to make a decision. The board of the BGCMA approves grant policy projects, supports water infrastructure, mostly linked to awareness and education for gardening. The entire project makes water available to smallholder farmers. Official No. 2 is active in the division of capacity building, roadshows and consultations with stakeholders to link the smallholder farmers with the relevant people or organisation to get assistance. Official No. 3 is involved in the Overberg area to assist with the assessment of authorisation for smallholder farmers from Schedule One, GA and to facilitate

the WUL process for them to access water. This official also assists smallholder farmers with the technical application so that they can access water by offering technical assessment on the application once it is submitted. The role of the official is to ensure that the applications from smallholder farmers are prioritised. In areas where smallholder farmers need to apply for a licence and there is a property involved, this official assists in environmental impact assessments and rezoning. On issues where the smallholder farmers are not applying for a water authorisation, the official puts the smallholder farmers into contact with the appropriate people. The official expedites the applications by making favourable comments if there are any complications. For example, if the smallholder farmer has to deal with the WCDoA, the official assists them with the map for water resources.

Official No. 4 is responsible for assessing water use applications. If the applicant is a smallholder farmer, the official assists by submitting the required hydrological and ecological studies of the area. Official No. 5 assists with water use management, water resources planning, water allocation and water resource protection. Official No. 6's main roles are to advise the smallholder farmers on good agricultural production practices in the Overberg District Municipality and provide support services to the smallholder farmers in terms of training, capacity building, extension activities and financial support.

Official No. 7 advises smallholder farmers, compiles farm plans and farm assessments, presentations and female entrepreneur profiles. This official also visits farms, assisting smallholder farmers to complete application forms that request funding for agricultural-related activities and other activities such as facilitating training, agricultural events, organising and doing hands-on demonstrations. Other duties include referring and linking smallholder farmers with different stakeholders and markets, transferring technology to smallholder farmers and offering relevant information. Official No. 8 is responsible for attending meetings on behalf of smallholder farmers that are in the WUA. The meeting normally happens with the BGCMA and the DWS and also with SAAFWUA. The official negotiates on behalf of the smallholder farmers for the expedition of WUL and also responsible for ensuring that water is conserved through clearance of alien vegetation and prudent water usage by the smallholder farmers.

4.2.3.3 The role of the supporting organisation

Official No. 1 stated that the BGCMA is guided by the NWA. Regulations show the process of who should do what and where and those policies in place need to be implemented to make water available to the smallholder farmers. The DWS has policies such as the Resource-Poor Farmers Grant policy. To make the farmers aware of such policies and how to access them, adverts are placed in local newspapers and roadshows are conducted in their respective areas. The official added that sections 27(1) (b) and 27(d) of the NWA give a guideline on the allocation for balance and redress and the motivational criteria, which fit the BGCMA water

allocation plan. The criteria that are considered are if the applicant is 100% black, it is an automatic licence for that smallholder farmer. Before water is allocated according to the policy, all the criteria have to be met. It is on the mandate of the organisation and the Department that the implementation of the policy should be through the criteria and the recommended procedure. According to official No. 3, the operation of the organisation in terms of the authorisation of water use works on a first come first served basis but when the application is for smallholder farmers, the policy gives priority in terms of the assessment. If there is a commercial farmer who applied for a licence two years before, the smallholder farmers are still given priority. Official No. 2 added that section 27(1) (b) is also applicable when the farmers are categorised as 50% Black Economic Empowerment (BEE). The BGCMA relies on the National Water Resource Strategy (NWRS) to a certain extent and the National Development Plan. The NWRS and regulation guide gives technical information in certain areas and assists in showing all the areas that have water quaternary available for the future. It also assists with the technical understanding of water availability and quality in all areas.

According to officials Nos. 6 and 7, the WCDoA has the National Policy on Extension and Advisory Services which are responsible for Norms and Standards for Extension and Advisory Services in Agriculture. The policies are drafted by the DAFF and are responsible for administering the policies at a national level. The provincial departments are responsible for the implementation of these policies. The National Department of Agriculture is also responsible for providing the budget for the implementation of the policies. The WCDoA is also guided by the Land and Water usage policies and funding for providing support to the smallholder farmers. The Land policy guides the smallholder farmers on following environmental regulations to promote green practices. This is where the smallholder farmers are required to have field burning permits, virgin land permits, environmental impact assessment permits, soil testing, cultivation practices and usage of chemicals. The Water policy requires smallholder farmers to have permits for water usage and storage and the Funding policy gives guidance to access funding and financial expenditure processes.

Official No. 8 indicated that the WUA is guided by the WAR strategy to ensure that the targets are met. The GWUA has a big scheme, the Eikenhof dam, which is allocated a certain amount of water per month. Once the dam accumulates extra water, which normally happens in winter, an extra dam will be built and when there is water, smallholder farmers are assisted to obtain a licence to extract water from the dam. This water helps when there is no water in the summer season.

In implementing the policy to ensure that smallholder farmers have water, the BGCMA works with different departments such as the WCDoA, DRDLR and the WUA. According to official No. 3, the BGCMA allocates water according to the strategy and the principle of the NWA. Not

all water allocation is done through the BGCMA; some is done through WCDoA and DRDLR for other studies such as rezoning of property and water quality. The BGCMA has to work with these organisations to recommend the study. However, some organisations are reluctant to share information sharing. The official added that the BGCMA provides support to the smallholder farmers in terms of assisting with water use applications by expediting the process.

According to official No. 2, the BGCMA also has a capacity- building unit that gives support to smallholder farmers and commercial and subsistence farmers by linking them with the relevant people. Other units do feasibility studies, especially for smallholder farmers who do not have water. This is where water user officials see for what category of water the smallholder farmer qualifies. The water user officials also negotiate with other smallholder farmers who have water to see if they can assist those who do not have water. The capacity-building unit facilitates the process for smallholder farmers to apply for funds, which are in the financial assistance policy of the DWS. These funds are used for capital outlay and are applied from the WCDoA. The funds assist the smallholder farmers to transport water from the point source to the farm. Other funds that are facilitated by the capacity-building unit are for operation and maintenance costs, which applies to smallholder farmers that are part of the WUA. However, to apply for these funds, a smallholder farmer needs to pay operation and maintenance levy. The money can be used to maintain all types of infrastructure that needs to be maintained. The capacity-building unit facilitates assessment studies of the water quality and writes up business plans for the smallholder farmers. The unit also goes out into the field to create awareness of opportunities available to smallholder farmers and assists in facilitating them. The unit furthermore supports smallholder farmers with rainwater tanks, technical support and administrative support.

According to official No. 7, the WCDoA provides support such as funding, bookkeeping, project registration, advice and formal and informal training to the smallholder farmers. According to official No. 8, the WUA supports the smallholder farmers that are affiliated to the WUA by connecting them with the BGCMA to obtain water certificates.

4.2.4 Organisation challenges in supporting smallholder farmers

Successful implementation of the policy requires the organisation to have officers who are willing to implement it (Figure 4.1). The organisation should have the resources (Figure 4.2) and an understanding of the people to whom the policy is applicable, which are the smallholder farmers (Figure 4.3) (Smith, 1973; van Meter, 1975; Khan & Khandaker, 2016). The organisation concept was adopted and questions were asked of the official's experience in WUL application processing, the implementation of the water allocation programme, the targeted group in the process, organisational coordination and the challenges faced in implementing the policies and strategies of allocating water to smallholder farmers.

4.2.4.1 Willingness to implement the policy

To implement the policy successfully, supporting organisations engage to ensure that information is accessible to the smallholder farmers. However, lack of knowledge and understanding of the smallholder farmers hinders the willingness of the supporting organisations to implement the policies.

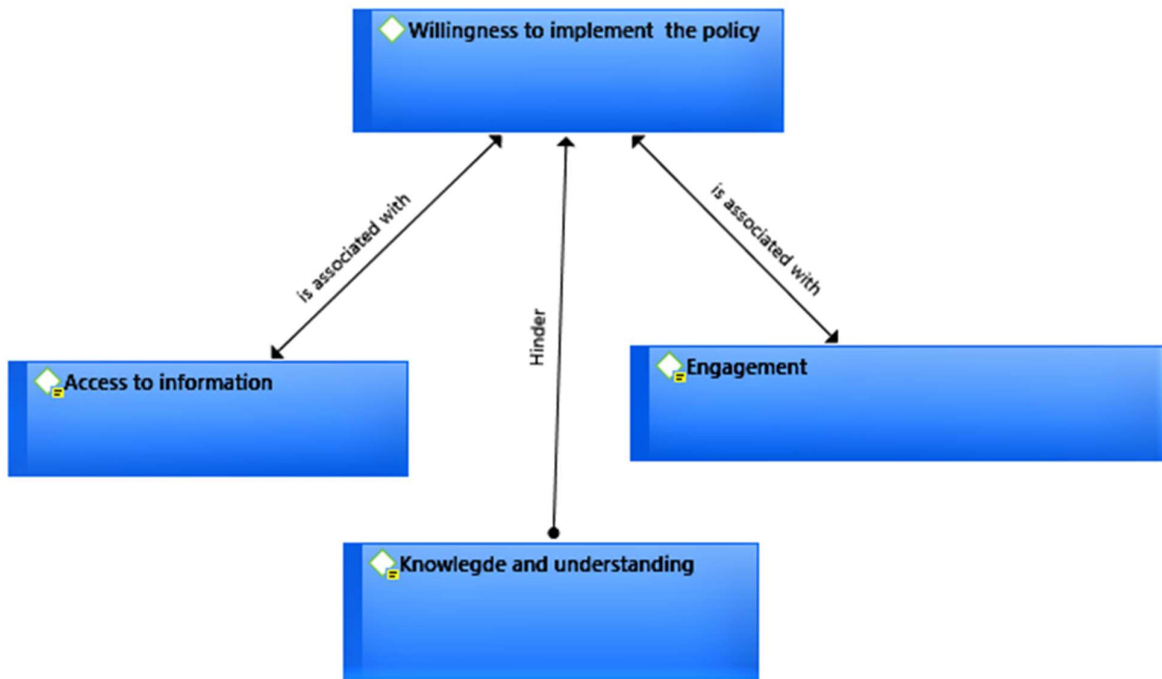


Figure 0.1: Willingness of the organisation to implement the policy

(Generated by Atlas.ti)

To understand the willingness of the organisations to assist smallholder farmers, files of documents with responses from the interviews were loaded into Atlas.ti and coded in a manner known only to the researcher to ensure confidentiality and privacy. During the data coding process, four themes emerged from the analysis, which form the basis of narrative results. They were willingness to implement the policy, engagement, knowledge and understanding and access to information. The outcomes are presented in the following section.

The organisations show a willingness to implement the policy through strategies that are in place, which ensures that the information is easily accessible to the smallholder farmers. Official No. 1 indicated that the BGCMA conducted roadshows as a form of motivation for the smallholder farmers to come to the BGCMA and learn about what the BGCMA does and how officials can assist them. The roadshows are conducted by the BGCMA, together with other

departments such as the WCDoA, DRDLR, WUA, Land Bank and other independent institutions that assist smallholder farmers in agriculture, such as the African Farmers Association of South Africa (AFASA).

Official No. 2 stated that the BGCMA establishes relationships between the smallholder farmers and other organisations that do not have an eagerness to assist the smallholder farmers. The BGCMA creates awareness and informs the smallholder farmers of available opportunities, which the BGCMA facilitates. Official No. 3 indicated that although the BGCMA tries to disseminate information to the smallholder farmers, smallholder farmers who are affiliated to the WUA have the advantage of a representative in the WUA that speaks on their behalf and keeps them up to date with all available information. As a result, they are assisted more quickly than non-WUA smallholder farmers. Official No. 3 felt that it was difficult to share meaningful information with non-WUA smallholder farmers because they were not familiar with the WUL language processes. As a result, one has to write a full report on their behalf and give them a template to complete with the rest of the non-WUA smallholder farmers. Official No. 6 added that the literacy level of the smallholder farmers is marginal and as result, their understanding of the legal requirements remains a challenge in terms of compliance and to complete the application forms to cultivate the land.

According to Official No. 3, the level of engagement is greater with the non-WUA smallholder farmers than with the WUA smallholder farmers. There is no formal way to engage with both groups of farmers, though non-WUA farmers are referred to WUA smallholder farmers for assistance. Official No. 4 indicated that the BGCMA engages with everyone who uses water, not only the smallholder farmers. Official No. 5 indicated that the engagement with the smallholder farmers happened on request, while according to official No. 6, engagement with smallholder farmers occurred through one-on-one monthly contact visits to the farms. There are also group activities on Farmers' Days and other extension activities that seek to engage with the smallholder farmers. Official No. 7 stated that there is engagement with all types of farmers, including commercial fruit farmers, small-scale grain farmers, emerging farmers, smallholder farmers, community gardeners and households. Official No. 3 indicated that in the allocation of water, there is no preferential treatment and priority is based on the order in which applications are received. The official added that the procedure could be intended to target a certain group but not receive any application from them. As a result, officials will prioritise applications from commercial farmers with a group of BEE components at the municipal level.

The level of knowledge and understanding of the policy by the smallholder farmers hinders the officials in policy implementation. Official No. 4 stated that every application was adjudicated on merit or evidence submitted. When applying for a WUL, information such as water rights, lease agreement and who the property owner is, should be known. Smallholder farmers find

these processes tedious and get bored when a lot of information is requested. The lack of information on water rights and lease agreement on the property causes applications to be rejected.

Official No. 2 stated that smallholder farmers fail to understand how access to water for agriculture works. Smallholder farmers just see a water canal running and think they can merely put in a pipe and pump straight to their farms and do not understand the formalities involved. This is the biggest challenge facing the organisation.

Official No. 4 indicated that smallholder farmers fail to read the pamphlets they are provided in their own languages, even though processes are legislated to favour everyone. It is a waste of time to change policies and the way of doing things without ensuring that the smallholder farmers understand the change. Officials Nos. 1 and 2 say that WUA smallholder farmers voice their problems clearly and one can understand in which area they need help. On the other hand, non-WUA smallholder farmers fail to voice their problems in the meetings, which makes it difficult for the official to know how they can be helped.

Although the supporting organisations are willing to assist the smallholder farmers to have access to information through roadshows and awareness-creation at Farmers' Days, the lack of knowledge and understanding of the WUL processes hampers the organisation in implement the policy. Official No. 3 indicated that smallholder farmers are at times referred to other farmers for the experience. According to Ballantyne (2009), inter-farmer referrals and communication fosters knowledge, promotes participation and encourages farmers to compare and share their experiences. Oreszczyń et al. (2010) emphasise that communities and networks of practice in the agricultural context influence farmers to share their social learning system. The author emphasises that farmers networking with each other promotes mutually beneficial sharing of knowledge and management practices. According to official No. 4, smallholder farmers do not want to commit themselves to the process even though the policy is written in their native language to facilitate their understanding. As suggested by Ballantyne (2009), local language makes the information more accessible; however, most of the African countries expect the marginal smallholder farmers to be the adopter and the taker of instruction without any innovation. Hence, most of the smallholder farmers do not speak up in meetings nor are they keen to provide relevant information to expedite the application process. As noted by Anderson et al. (2007), incorrect information obtained from the applicant leads to delays in the licence application process.

4.2.4.2 Resources to implement the policy

For policy performance, the implementing organisation needs to have resources in terms of the official's capacity, adequate finance and the infrastructure to render such services (see Figure 4.2).

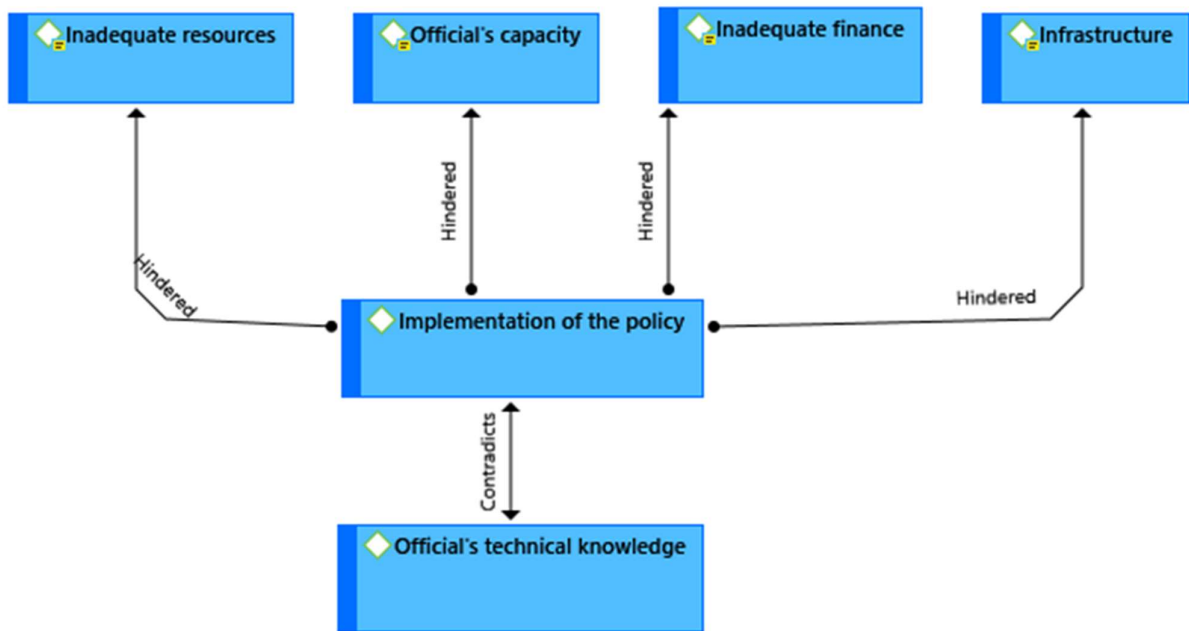


Figure 0.2: Resources to implement the policy

(Generated by Atlas.ti)

To understand the resources required by the organisation assisting smallholder farmers, files of documents with responses from the interviews were loaded into Atlas.ti and coded in a manner known only to the researcher to ensure confidentiality and privacy. During the coding process, six themes emerged from the analysis of the data, which form the basis of narrative results. They were official technical knowledge, implementation of the policy, inadequate finance and resources, infrastructure and official's capacity. The outcomes are presented in the following sections.

For the BGCMA to be able to render the service of water allocation, they require finance to operate. Official No. 1 indicated that the BGCMA does receive a subsidy or grant to give to the smallholder farmers for operation. However, those subsidies are limited, they stop at a certain time and are not continuous until the person can stand on their own. Other government departments that cooperate with the BGCMA in giving support to the smallholder farmers have limited funds, resulting in water allocation processes not always being successful. Official No. 2 indicated that the BGCMA relies on the funds that they receive from the DWS to benefit the water allocation process. However, for the 2017/2018 financial year, the DWS did not have money to fund any applications received from the BGCMA. Lack of funds led to a longer waiting period for studies such as hydrology. The government failed to pay for the authorisation processes to proceed. The delay in receiving funds makes it difficult for the smallholder farmers to comply with the legal requirements for financial assistance. Official No. 8 is concerned that

there are no better routes to follow in licensing procedures. The DWS process is packaged in a way such that it cannot be simplified. Official No. 7 also indicated that the process of water allocation is complicated, with no access to land, water, funding and land lease terms issued to smallholder farmers. As a result, not many of the applications received request a WUL because the land size is considered. Many of the applications received are for GA.

Official No. 1 indicated the BGCMA only plays the formal role of allocating water in terms of the law. This is a paper exercise and does not necessarily mean that there is physical water present. Infrastructure needs to be developed for the smallholder farmers to get water. In other words, water can be allocated from the resources but the challenge lies in the extraction of that water from the source for irrigation purposes. This is what leads many smallholder farmers to complain that they do not have water. In most cases, the water itself might not be the problem, in that it is underground or flowing in a river, so much as the infrastructure required for extracting the water. Water can be allocated to smallholder farmers but they need a pump and electricity from Eskom to get the water to the land. Official No. 1 claimed that there is a dire lack of resources to support water allocation adequately throughout the country. The official added that distance between non-WUA smallholder farmers is a challenge. The expected cost is very high for constructing a pipe to supply water to smallholder farmers that are far from the water point. Official No. 8 indicated that the WUA assists smallholder farmers by getting water from reticulation; however, a certain amount of money is charged according to whether the user is an established or not well established smallholder farmer.

Capacity plays a major role in the water allocation process. Water allocation requires a lot of reading and one has to understand what is needed before making any decision or making a referral on an application. In this regard, the WAR programme had a shortage of human capacity. According to official No. 3, the problem in the BGCMA is that there is no delegated official or WAR unit to deal with smallholder farmers—WAR is just one area of many. There is no active drive in terms of which one is looking for people to apply or for water that is available. Water allocation applications arrive via email and often the official is busy with another matter and unable to attend to it immediately. An official appointment letter indicated that only 6% of officials' time is spent on water allocations, so not much in the way of results can be expected from them. The type of work that needs to be done on water allocation is beyond the capacity of the officials. Sometimes officials are required to assist smallholder farmers with filling in water use application forms, which is time-consuming. Official No. 3 also assisted with WUL applications of 18 Robertson smallholder farmers. The official had to write a full report and give it to the smallholder farmers to complete the rest. This work is not part of the official's duties. Information required in the WUL application form includes applicant's details, is the applicant applying as an individual, a company or from an organisation such as the WUA, the type of water source, the purpose of the water use, the property where water use will take place,

details of the property owner and a declaration by the property owner together with terms and conditions, water use licence, quality management assessment and a list of supporting documents.

Official No. 3 indicated that assisting smallholder farmers, who do not have representation, prolongs application process, unlike the WUA smallholder farmers who have a chairman to assist them with the application process. The chairperson of the WUA (official No. 8) is currently enrolled in a course at the University of Cape Town to gain a deeper understanding of water affairs in general. Assisting the non-WUA smallholder farmers is difficult. Officials cannot be expected to keep checking on smallholder farmers' progress with the application processes. Due to the lack of follow-up, some applications never get returned to the BGCMA.

According to Khan and Khandaker (2016), factors of policy implementation depend on organisational structure and human resources, personnel, equipment and technology, the level of coordination and cooperation, location as an implementing infrastructure and the exercise of authority. As a result, the lack of adequate resources, including finance and human capacity at the BGCMA and proper infrastructure among the smallholder farmers, the BGCMA is unable to implement the policy. Water infrastructure such as dams, irrigation schemes, private pumps and farm dams was provided for white farmers as well as irrigation for black smallholder farmers. With the new government, support has declined for white irrigators, while the situation has become much worse for smallholder farmers, who suddenly lost almost all government support. The management of water resources includes developing infrastructure to store and transport water to users, allocating the resource to different users, implementing incentives for its efficient use and protecting it (Muller et al., 2009). It will be difficult to achieve WAR without the supply of infrastructure to smallholder farmers (van Koppen, 2009). Even when the smallholder farmer has all the resources to qualify for water allocation, a lack of technical knowledge on the part of officials can stand in the way. Some of the technical staff hired by the departments fail to make logical decisions. Official No. 3 also noted that there were colleagues who were a challenge to work with and who would not go the extra mile to assist smallholder farmers to complete a project.

4.2.4.3 Understanding of the target group

For the water allocation process to be a success, the implementing organisation needs to coordinate with the sister departments and engage with the smallholder farmers to understand their capacity, as shown in Figure 4.3.

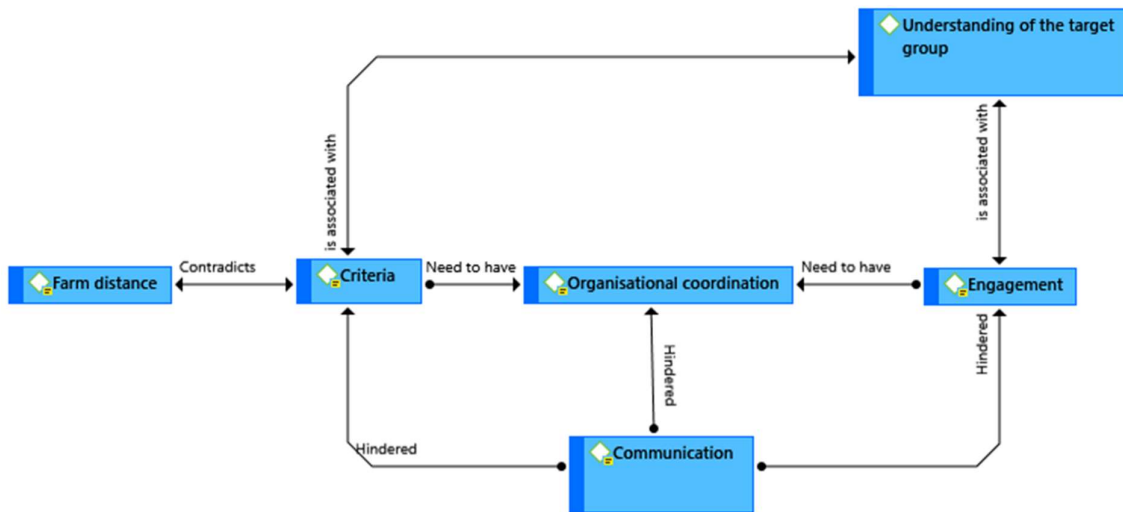


Figure 0.3: Organisation's understanding of the target group

(Generated by Atlas.ti)

To gain insight into the organisation's understanding of its target group, files of documents with responses from the interviews were loaded into Atlas.ti and coded in a manner known only to the researcher to ensure confidentiality and privacy. During the coding process, six themes emerged from the analysis of the data which form the basis of narrative results. They were communication, engagement, criteria, farm distance, organisation coordination and understanding of the target group. The outcomes are presented in the following section.

According to Sabatier (1988) and Goggin (1990), the policymaker or an organisation should implement a policy based on the structure of the target groups. The organisation needs to understand the target group, in this case, the smallholder farmers and the type of support to be provided through engagement and coordination. According to official No. 1, the BGCMA's allocation of water to the smallholder farmers uses the criterion that if the smallholder farmers are from the previously historically disadvantaged group, a licence is automatically granted to them as stipulated in the WAR programme. For food gardening projects, official No. 2 indicated that the criterion was that tanks should be given to the poorest of the poor with a household income of not more than R3,000 per month; neither the applicant nor his/her spouse should be employed by the municipality or the government. The tanks were given on condition that if the beneficiary moves or relocates, the tank remains behind.

To fulfil the water allocation criteria, official No. 1 indicated that the BGCMA had to coordinate with various organisations through their stakeholder engagement division though other departments such as the DRDLR did not recognise the work that the BGCMA was doing or how it fitted in with their mandate. This was because the DRDLR's understanding of the land

and water relationship was different and they seemed resistant to cooperation. The DRDLR worked independently and there were certain roadshow events to which the BGCMA invited DRDLR but the invitations were not accepted. Policies of different departments are interlinked but the time frame for implementation differs. Official No. 4 claimed that it was difficult for departments to contact each other. Official No. 6 emphasised that some municipalities struggle to maintain acceptable cooperation obligations. Other government departments are not completely decentralised and are unable to render services to rural communities. The IB, now the WUA, does not understand the importance of water allocation. Only Non-Governmental Organisations (NGOs) and private cooperatives maintain acceptable standards of communication and service delivery.

The BGCMA tries to engage smallholder farmers and other departments through meetings. However, official No. 2 indicated that the non-WUA farmers do not have proper channels to voice their concerns, unlike the WUA smallholder farmers who have representatives to speak for them. The WUA smallholder farmers attend meetings and voice their problems. Meetings assist in a situation where one farmer who does not have water gets to know about the neighbouring farmers who have available water to give away. Official No. 5 indicated that most non-WUA smallholder farmers do not come forth to share their problems, which makes it difficult for the official to know exactly what their challenges are. Official No. 4 emphasises that non-WUA smallholder farmers lack communication and do not follow procedures. For instance, an official can call a farmer looking for missing information and the smallholder farmer does not answer the phone when follow-up is done. They submit the application with a copy of their ID and when needed thereafter, they are nowhere to be found. To the non-WUA smallholder farmers, applying for a licence is a matter of submitting an ID copy; they are not passionate about following the procedures.

Official No. 1 indicated that more WUA smallholder farmers raise their concerns during meetings than the non-WUA smallholder farmers. The difference between them is power. The WUA smallholder farmers have the infrastructure to pump water from the dam, for instance and can obtain assistance in challenging water control rulings (van Koppen and Schreiner, 2014), while non-WUA smallholder farmers have to develop their own infrastructure which is a problem. The WUA smallholder farmers are fighting the decision of taking some water away from them through the V&V processes.

Official No. 2 stated that there is uniformity in allocating resources to smallholder farmers, especially those in need of land. Smallholder farmers are given land to farm that is a far distance from where they live. Sometimes they do not have transport and have to take a taxi and then walk to the farm. Because of the distance involved, infrastructure at the farm can get

vandalised or stolen. Most smallholder farmers end up leaving farming. The capacity of these smallholder farmers is not prioritised when allocating resources.

Supporting organisations try to coordinate engagement with smallholder farmers but the methods of communication and of allocating resources are uniform across smallholder farmers with differing needs. According to Fischer (2012), for successful policy implementation, the target group should be clearly understood and for bigger groups it can be sub-divided according to needs. Therefore, there is a need for the BGCMA to understand the capacity of the smallholder farmers to avoid the vicious cycle that can lead to failure in achieving the water allocation targets. Table 4.2 below summarises the challenges facing organisations in supporting smallholder farmers, including access to water.

Table 0.2: Summary of organisational challenges in allocating water

<p>Smallholder farmers</p> <ul style="list-style-type: none"> • Failing to reach out to the smallholder farmers; • The WUA smallholder farmers are reluctant to give information for V &V to make more water available; • Smallholder farmers fail to follow the procedures on WUL application processes; • Smallholder farmers have limited or no contact with other role players (service providers) in the sector, therefore expecting extension services to address all their challenges; • Limited access to land, water and funding by the smallholder farmers hinder organisation's implementation of a policy. Much of the application received is for General Authorisation; • Lack of communication from non-WUA smallholder farmers and not attending meetings; • Little or no supporting evidence is provided for water licence processing; • A distance between smallholder farmers and water points leading to high expenditure for constructing infrastructure to supply water; • Lack of resources such as electricity to extract water hinders the legal processes of water allocation; • Smallholder farmers not organised.
<p>Organisational coordination</p> <ul style="list-style-type: none"> • Lack of organisational coordination and the structuring of all the departments. Irrigation Board does not understand the importance of water reallocation. • Government departments not 100% decentralised and therefore lack services rendered to rural communities. • The department receives limited funds/discontinuation of funding; • Lack of extra water to allocate to the smallholder farmers; • Lack of capacity e.g. finance and human capacity; • Lack of development of proper infrastructure at the ground level.
<p>Policy</p> <ul style="list-style-type: none"> • Policies of different departments are intertwined but the time frame for implementations differ; • Long time lapses from an application for financial assistance to implementation. To comply with all the legal requirements remains a challenge; • Lease terms and conditions for land allocation; and • The DWS WUL processes already packaged in a way that cannot be simplified.

4.2.5 The smallholder farmers

This section gives results and interpretation of the data collected during the interviews with 12 smallholder farmers in the BGCMA. Two were WUA and 10 were non-WUA smallholder farmers. The policy implementation model was followed as a way of developing the question for the collection of data; therefore, the findings are presented to identify the challenges that smallholder farmers face when applying for a water user licence. The concept used from the Policy Implementation Framework was the target group. The section also summarises the challenges faced by both WUA and non-WUA smallholder farmers when applying for a water user licence.

4.2.6 Description of the smallholder farmers

Table 4.3 below describes both WUA and non-WUA smallholder farmers in terms of water use entitlement, access to water use, production and farming experience.

Table 4.3: Description of the smallholder farmers

Farmer	Water use entitlement	Access to water use	Production	Farming experience
Non- WUA smallholder farmers				
Farmer No. 1	Not sure of water use entitlement	32 litres/hour for four hours every week	Table grapes	Practising farming from a very young age
Farmer No. 2	Schedule One: 50 litres/day	Insufficient for agricultural production; farmer illegally extracts an additional 10,000 litres/day	Cash crop farming	More than 20 years
Farmer No. 3	General authorisation	Inconsistent; GA water was redirected to another farmer; Farmer No. 3 now receives inconsistent water supply from the municipality	Vegetables	More than 10 years
Farmer No. 4	No water entitlement	Water access sublet from the neighbour	Cattle farming	More than 10 years
Farmer No. 5	No access to water	No assistance		Practising farming from a very young age
Farmer No. 6	No access to water	No assistance	Vegetables	More than 10 years
Farmer No. 7	No water entitlement	Borehole water supply from the Department of Trade and Industry		Practising farming from a very young age
Farmer No. 8	No water entitlement	No assistance; accesses water from municipal standpipes	Vegetables	Between 7- 10 years
Farmer No. 9	No water entitlement	No assistance; accesses water from municipal standpipes	Vegetables	Between 7- 10 years
Farmer No. 10	No water entitlement	No assistance	Vegetables	Between 7- 10 years
WUA smallholder farmers				
Farmer No. 1	Existing Lawful Water User	Water supply from GWUA at 188m ³ per month and from the DWS at 10m ³ of river water per month	Plums and apples	Practising farming from a very young age
Farmer No. 2	Existing Lawful Water User	Water supply from the river is sufficient	Tomatoes	Practising farming from a very young age

4.2.7 Challenges of licence application amongst smallholder farmers

The policy implementation framework requires that for the policy to be implemented, the target group needs to understand and adapt to the policy implemented. For the smallholder farmers

to adapt to water allocation, they need to apply for a WUL and one needs to know the amount of water needed for agricultural use (Figure 4.4), have resources such as infrastructure to access such water (Figure 4.5) and have access to land (Figure 4.6). Following the concepts of policy implementation, questions were asked around smallholder farmers' background, the type of agricultural practice, water sources and sustainability, their understanding of water policy, the supporting organisation and the challenges faced in accessing water through the WUL process.

4.2.7.1 Licence application

The policy framework requires that the target group needs to understand the processes of the policy to be implemented to be able to adapt. For smallholder farmers to be able to apply for WUL, they need to understand WUL application processes.

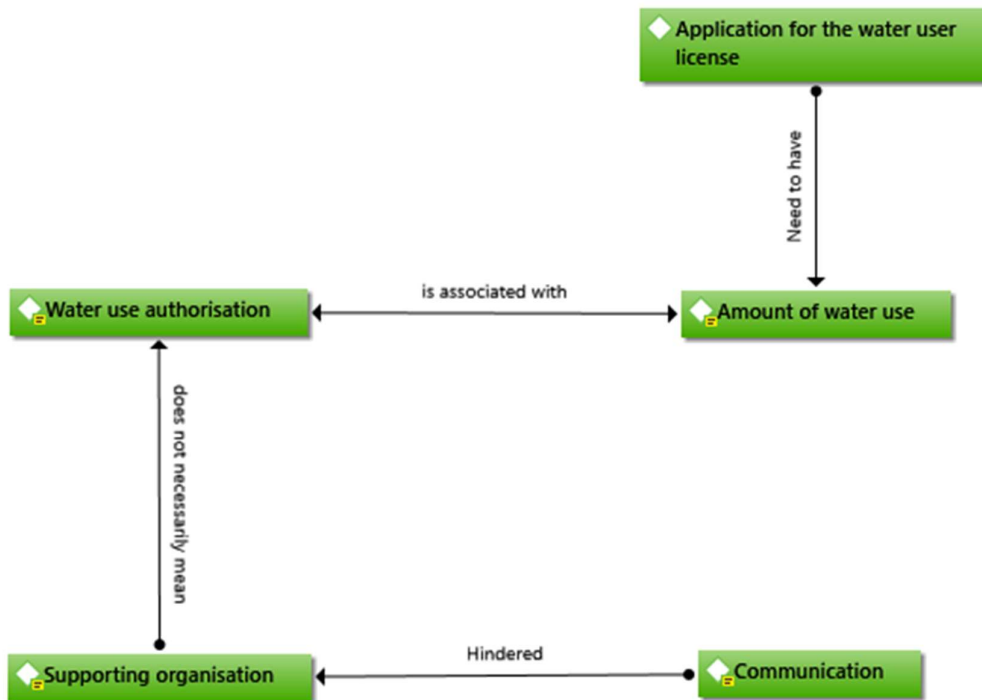


Figure 0.4: Licence application by the smallholder farmers

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To understand the process that farmers need to follow to apply for a licence, files of documents with responses from the interviews were loaded into Atlas.ti and coded in a manner known only to the researcher to ensure confidentiality and privacy. To categorise the data, documents were coded into themes and five themes emerged from the analysis of the data, which form the basis of the narrative results. They were application of the water user licence, amount of

water use, water use authorisation, supporting organisation and communication. The outcomes are presented in the following section.

For the smallholder farmers to be able to apply for a licence, they should know the amount of water the agricultural activity requires, that is, if the water use qualifies one to acquire a licence or not. Of the 10 non-WUA smallholder farmers interviewed, only two have water use entitlement. Farmer No. 2 has Schedule One, of which he receives 50ℓ/day. However, this amount of water is not enough for production, leading the farmer to extract 10,000ℓ/day illegally. Farmer No. 3 has a GA but the source from where the water was extracted has been re-directed to another farmer and water is now provided by the municipality and the quantity is too inconsistent to be assessed. Farmer No. 1 does not know how much water s/he uses; however, the 5ha land has 48 sprays in rows that spray 32ℓ/hour for four hours every week. Farmer No. 4 knows how much water is required for agricultural use but rents water from the neighbouring commercial farmers who previously owned the farm the farmer currently occupies. The land did not have a water problem until it was sold to farmer No. 4 without the water rights. Farmers Nos. 5, 6, 7, 8, 9 and 10 do not know the amount of water use needed for their agricultural activities.

The WUA smallholder farmer No. 1 knows the amount of water used on the farm. The farmer extracts water from two water points, one being the GWUA, which allocates 188m³ per month and the other being the DWS, which allocates 10m³ per month from the river. Smallholder farmer No. 2 does not know the amount of water being used but it is sufficient for agricultural activity. The water rights for both WUA smallholder farmers Nos. 1 and 2 were transferred together with the leasing of the land.

The non-WUA smallholder farmer No. 1 never applied for a water user licence. The use of the land title came together with the water rights. The owner of the farm is the one who applied for access to water. Smallholder farmers Nos. 3 and 4 have not received any assistance in getting access to water for agricultural use. Smallholder farmer No. 2 is in the process of getting a WUL through the DWS and the BGCMA. Smallholder farmers Nos. 5 and 6 never get any assistance from any organisation that assists in providing access to water. Smallholder farmer No. 7 applied for assistance with water through the Department of Trade and Industries (DTI) and got funds for a borehole. For smallholder farmers Nos. 8 and 9 also, there is no organisation assisting with access to water, except the municipality that provides water from a tap, that is sometimes interrupted and the farmers go for days without water. Smallholder farmer No. 10 never approached any organisation to seek help regarding access to water.

Both WUA smallholder farmers Nos. 1 and 2 have the supporting organisations, that is, the Central Breede River WUA and the GWUA who negotiate on their behalf. It is not necessary

for the smallholder farmers to consult with the supporting organisations for requests on water allocation. The CEO of the WUA sits on their behalf for the negotiations.

The policy implementation framework requires that for the policy to be implemented, the implementing organisation needs to have constant communication with the targeted group. The success of the policy depends on the relationship between different levels of the organisation, including the local level. Lack of relationships results in a gap in policy implementation (Teng & Gu, 2007). Non-WUA smallholder farmer No. 2 indicated having had applied for a WUL since 1996 and although at one stage being referred to Public Works and Department of Agriculture, it was to no avail. Due to lack of communication, there has been some running around between the department and till today, the water licence has not been issued. According to non-WUA smallholder farmer No. 8, communication is even a problem in meetings. "We are always invited to meetings conducted by a black person speaking in English where all the departments will be available to assist". This was problematic because even when they wanted to ask questions, the questions and the answers would be interpreted. The interpretation would leave the smallholder farmers puzzled because the information that comes from the interpreter is not the same as that which comes from the initial speaker.

Although the non-WUA smallholder farmers need water for their agricultural use, it is not certain whether the agricultural practice requires a licence or not since the amount of water used or needed is not known. Some of the farmers' agricultural activities do not require a licence but are registered under GA. A study conducted in Mozambique indicates that regulations and formal law can create opportunities and/or obstacles to sustain one's rights and mobilise resources and people. The formalisation of water rights may make the use of water by the smallholder farmers invisible or render them culpable for failing to register their use (Veldwisch et al., 2013). Although the smallholder farmers need to consult the department for assistance with the registration of water use, most of the non-WUA smallholder farmers lack an understanding of the WUL application processes. Official No. 4 indicated that non-WUA smallholder farmers do not make a request with the supporting organisations regarding access to water. The low level of communication by the smallholder farmers with the supporting organisations hinders the organisations in knowing how smallholder farmers can be assisted. However, non-WUA smallholder Farmers No. 2 and 8 confirmed that visiting the organisation does not necessarily mean they will get help, due to lack of communication by the organisations.

4.2.7.2 Access to resources

According to van Meter and van Horn (1975), resources are one of the variables that shape the linkage between policy and performance. Proper implementation of the policy can be undermined due to a lack of sufficient resources (Lipsky, 2010). In water allocation, smallholder

farmers need funding/grants to be able to build or refurbish infrastructure to access and store water, which will sustain the ploughing season and avoid the loss of the harvest (Figure 4.5), and land (Figure 4.6) to be effective and have high productivity. Such resources are very important in achieving water allocation targets.

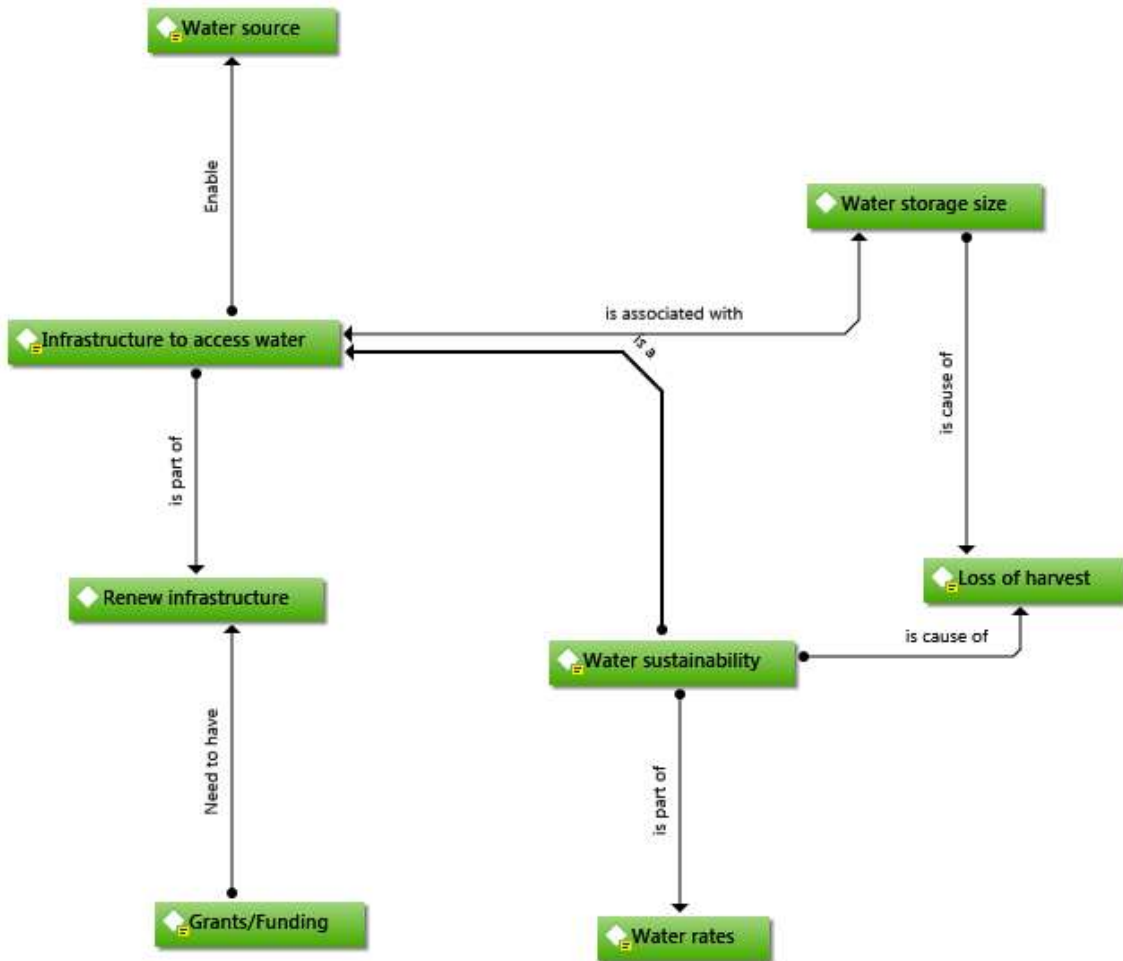


Figure 0.5: Access to water

(Generated by Atlas.ti)

To understand the access to the resources by the farmers, files of documents with responses from the interviews were loaded into Atlas.ti and coded in a manner known only to the researcher to ensure confidentiality and privacy. To categorise the data, documents were coded and eight themes emerged from the analysis of the data, which form the basis of the narrative results. The themes are water rates, grants/funding, water sustainability, renewed infrastructures, infrastructures to access water, water source, water storage size and loss of harvest. Presented are the outcomes.

Water sources are very important for the productivity of the farmer. Smallholder farmers need to have access to water to sustain their agricultural activities. Without access to water, there will be no agricultural yield.

The non-WUA smallholder farmer gets water from different water sources. Farmer No. 1 gets water from the dam of Kuruma farm, farmer No. 2 gets water from the Theewaterskloof Dam, farmer No. 3 gets water from the Spoorweg Dam and farmer No. 4 pays for water from the dam of the neighbouring farmer. Farmers Nos. 5 and 6 get water from the mountain snow during the winter season. However, during the dry season farmers 5 and 6 use water from the municipal overflow dam which they made a trench to accumulate more water for irrigation. Farmer No. 7 gets water from the borehole, which saves the farmer electricity and brings an income, where the farmer sells for R2/25ℓ to the community when they run out of water. The farmer does not have any problem with water; the problem is the size of the land, which is too small for agricultural activities. Farmers Nos. 8, 9 and 10 get water from harvesting rainwater, municipal taps and the grey water from their households. The WUA smallholder farmer No. 1 gets water from the GWUA reticulation; the river, which is owned by the DWS, and the borehole as an alternative source. Farmer No. 2 gets water from the river and has no alternative water source. For the non-WUA smallholder farmers, the amount of water from the source is not enough to sustain the ploughing cycle except for farmers Nos. 1 and 7. The WUA smallholder farmers have enough water to sustain the ploughing cycle, however, both WUA and non-WUA smallholder farmers experience the same problem of infrastructure to extract water from the source, though WUA smallholder farmer No. 1 has a water storage facility.

To access water, smallholder farmers need proper infrastructure to extract and store water to sustain agricultural productivity. The non-WUA smallholder farmer No. 1 pumped water straight from the dam to the 5.5ha vineyard. The water was enough to sustain the land but there was no water storage on the farm. Farmer No. 2 is allocated only 50ℓ/day under Schedule One and the water is insufficient to sustain the crops. The farmer indicated that even though the water is not enough, the farmer ends up extracting 1,000ℓ, which is still not enough for agricultural activities. Due to lack of water storage, two years ago, half a hectare of cash crops was lost. The loss of harvest could have been avoided if there was water storage or an alternative water source. Therefore, the water pump used to extract water from the Theewaterskloof dam must always be maintained in good working order because if it breaks down there is no alternative means of pumping water to sustain the crops. The farmer added that the pumped water is used to sustain two planting cycles, however, due to drought, the water does not last long.

Farmer No. 3 gets water from the mountains, straight into the dam, and then pumped to the farm. However, the dam level has now dropped because it has been diverted by the municipality to the neighbouring farmer who is producing mushrooms. The farmer indicated

that because of the low water level in the dam, the pipe to pump water to the farm gets broken every week due to mud that blocks the pipe. Farmer No. 3 believes that water is diverted to farmers who can pay water rates to the municipality and the municipality gives preference to farmers whose products have high economic returns. For the past three years because of the diverted water, farmer No. 3 has not been able to plant crops. Before the stream was diverted, water from the dam used to sustain the crop throughout the growing season. Due to a shortage of water, the municipality has provided tanks to store water. However, the supply of water is not consistent enough to sustain production. Farmer No. 4 borrows water from the neighbouring farm; it comes through the pipes straight to the troughs to water the cattle.

Farmers Nos. 5 and 6 have water that can sustain the farm for two weeks. The provision of water depends on the municipality and if the municipality decides to close the dam, there will be no water. The water is pumped straight from the canal built next to the dam to the gardens and there is no storage facility. Due to lack of a storage facility, water from the municipal dam overflows and is wasted. To maintain the broken infrastructure on the farm, the farmers contribute R100.00 monthly. Farmer No. 7 pumps water from a borehole that is 80m deep, directly into the 10,000ℓ tanks. When the tank is full, it can sustain the farm for three weeks. Farmers Nos. 8 and 9 use a small bucket to fetch water from the municipal tap, store water for irrigation and use grey water as alternative water for irrigation. However, the water is depleted very quickly because the buckets are small and the soil is sandy, which consumes a lot of water. When there is no grey water or water from the tap, there are no other means to sustain agricultural activities. Farmer No. 10 indicated that due to lack of infrastructure to store water, ploughing season used to be between September, October and November, sustained by the rain the region receives. During December there will be no crops on the land due to lack of rain and everything that has been planted will die. The farmers had just received 10,000ℓ water tanks and only now will be seen how long the water will sustain the growing season.

The WUA smallholder farmers have the infrastructure to extract water from the water source into the water storage facility. Farmer No. 1 has two balancing dams of 50m³ and 30m³ that store water and distribute it to the whole farm. Farmer No. 2 does not have a storage water facility; however, water to sustain the vegetables is not a problem.

For smallholder farmers to have access to resources, they need support in the form of grants/funding to be able to build infrastructure to extract and store water. WUA smallholder farmer No. 1 indicated that since 2013 when s/he started farming, the government only gave R2 million which was used to renew the rotten infrastructure and since then the farmer has not received anything from the government. The infrastructure on the farm is exhausted and government support has been very late in coming, resulting in no productivity on the farms. The farmer still has a 16ha piece of land that will be in production by the year 2021. According

to official No. 1, the grants that the BGCMA receives to fund the smallholder farmers are limited. The official added that applications were received requesting funds in 2018 and were sent to the DWS. However, the DWS did not have money to fund any application they received. The official indicated that the government gives subsidies but this stops before the smallholder farmers can stand on their own and this affects their production. Official No. 2 indicated that during apartheid, farmers used to be set up by the government; they used to make sure that farmers had tractors. Now the smallholder farmers are given money and it will be a once-off thing. Smallholder farmers should be given support for 15-20 years until they can stand on their own. Farming needs skills, access and proper assistance with resources, not only money. Source of water is a challenge to the smallholder farmers. Most of the non-WUA smallholder farmers do not have a stable water source and lack of infrastructure to extract and store water. As a result, smallholder farmers end up not having enough water to sustain their productivity and miss harvest because of the dry season or when there are natural disasters such as drought. Some of the harvests are lost due to the small size of the water storage facility that cannot sustain the ploughing season. However, the case is different for the WUA smallholder farmers. These farmers have water sources and infrastructure to extract and store water, although the infrastructure is old and needs, to be refurbished. The subsidies to revamp the infrastructure are delayed, which also affects production of the farm.

To access water that can sustain production, smallholder farmers have to pay water rates. The non-WUA smallholder farmers find water rates to access water very high and many settle for less water, which cannot sustain their productivity. Farmer No. 1 pays an amount of R10, 000.00 seasonally, which includes the lease. Farmer No. 2 pays nothing to access water but is willing to pay the water rates if the WUL can be made available. Farmer No. 3 has a GA and does not pay for water. He states:

“We are not willing to pay for water since the water comes from God. We do not see it necessary to pay for water that is written on paper while there is no actual water, we cannot tear the paper and water the ground with it. It is water that we need, not a paper.”

Farmer No. 4 received the land with no water rights. The farmer opted to sublet water from the neighbouring farmer and pays R500.00 every month. This is instead of R3, 500.00, which would have been paid to the Theewaterskloof municipality for water used and the farmer would still have to pay R1, 500.00 for service delivery. Farmers Nos. 5, 6 and 7 do not pay water rates. Both farmers Nos. 5 and 6 get water from the municipal dam overflow and the mountain snow, while farmer No. 7 uses borehole water. Farmers Nos. 8, 9 and 10 rely on the municipal standpipe for watering crops. The problem is that the water is shared with the community and the water rates become very high. The municipality encouraged the farmers to register the tap under the name of one of the group members for billing. However, none of them have a stable

job to be able to take the responsibility of paying the water rate and the gardens do not make enough more money to cover the costs.

The water rate for the WUA smallholder farmers is higher than the non-WUA smallholder farmers. Farmer No. 1 pays an amount of R49, 000.00 per year and farmer No. 2 pays R3, 600.00 every harvest season. Due to the high water rates, farmer No. 1 indicated that sometimes the water is cut off and assistance is needed from fellow farmers to pay.

The WUA and the non-WUA smallholder farmers experience challenges with paying water rates to access water. Non-WUA smallholder farmer No. 2 is willing to pay water rates if s/he can have access to water. Speelman et al. (2010) found that smallholder farmers are prepared to pay high water rates if this will improve the connection in the water rights system. However, non-WUA smallholder farmer No. 4 demanded that the water rates be lowered to enable non-established smallholder farmers to access water to sustain their agricultural activity. According to official No. 8, the water rates are charged according to use. This calls for metering to charge everyone according to the amount used, regardless of whether the user is well established or not. Smallholder farmer No. 4 indicated that the amount that is expected to be paid to access water is very expensive since every cent that comes in needs to be put back into the farm for operation. The farmers added that the water rates for the smallholder farmers are a total rip off as the amount charged to them to access water cannot be the same as that of well-established smallholder farmers. "Water right is just being made complicated because us the black smallholder farmers we are not needed in the agricultural business; they just want us to be discouraged". Non-WUA smallholder farmer No. 8 indicated that paying the water rate for the tap water that is not protected and is shared with the community will be a challenge since the bill will be very high. Non-WUA smallholder farmer No. 3 indicated that water is diverted to smallholder farmers with productivity of high value and little or no water is left for low productivity farmers. According to Wichelns (2014), water is just one factor in the whole agriculture operation. It is of great concern if the farmer's production will only be considered on the input of water efficiency to the product without considering other dynamics such as market, policy and natural disasters. This will negate the purpose of water allocation and management. Because of high water rates and storage infrastructure, both WUA and non-WUA smallholder farmers end up not having enough water to sustain their productivity.

4.2.7.3 Access to land

For the smallholder farmers to adapt to WAR they need access to land through the support of the organisation (Figure 4.6). However, the right to the land is hindered by lease terms and short periods, resulting in smallholder farmers not having title deeds and they are allocated land that is small in size and already exhausted from agricultural practices.

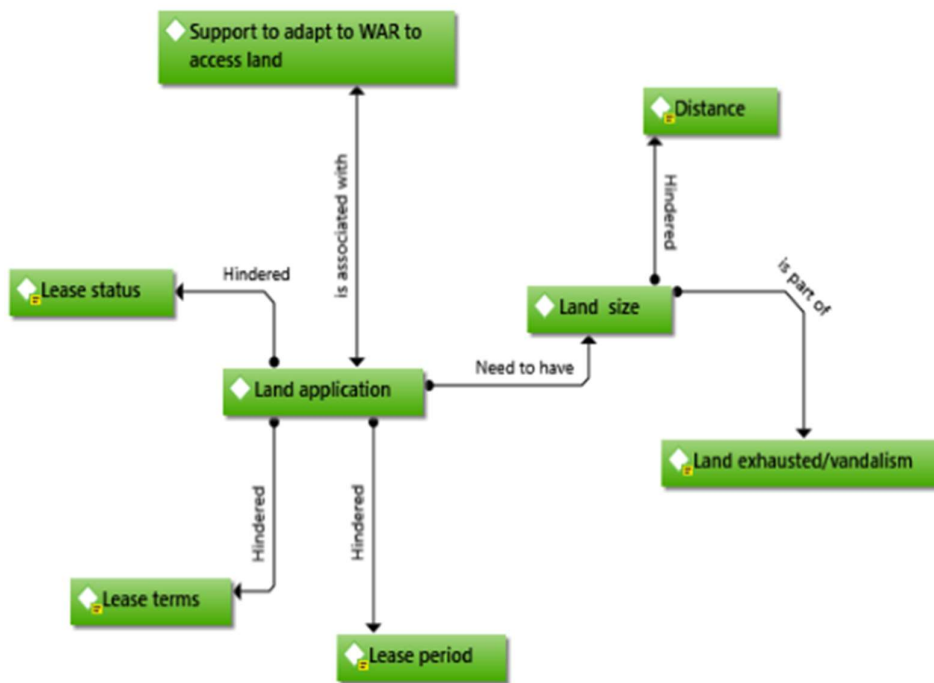


Figure 0.6: Adapting to water allocation reform through access to land

(Generated by Atlas.ti)

To understand to what farmers need to adapt, WAR files of documents with responses from the interviews were loaded into Atlas.ti and coded in a manner known only to the researcher to ensure confidentiality and privacy. To categorise the data, documents were coded and eight themes emerged from the analysis of the data, which form the basis of narrative results. They were lease term, period and status, land exhausted and vandalism, land size and land application; and support to adapt to WAR to access land. The outcomes are presented in the following section.

The non-WUA smallholder farmers acquire land in different ways. Farmer No. 1 hired the land from a previous farmer employer. Farmer No. 2 was assisted by the Department of Public Works. Farmers Nos. 3, 7, 8, 9 and 10 leased the land from the municipality, which previously was an open space used by the community as a dumping site. Farmer No. 4 received the land through the help of the Overberg District Municipality, though the land did not have water rights. Farmers Nos. 5 and 6 inherited the land from their forefathers. Regarding WUA smallholder farmers, farmer No. 1 acquired the land through the DRDLR and farmer No. 2 hired the land from a former employer. Applications for land by smallholder farmers do not necessarily mean access to land, let alone water. Farmers still experience a challenge in accessing the land with water rights for agricultural use.

According to official No. 1, when it comes to water allocation it is important to have access to land for the water to be allocated. If the smallholder farmers do not have land, it is difficult to access water. According to official No. 2, smallholder farmers consult the BGCMA when they are looking for a large portion of land so that they can elevate their farming to a commercial scale. The BGCMA, together with supporting organisations, will assist in getting the land for them, which in most cases will be some distance away from the community. This was the case with the non-WUA smallholder farmer No. 4, who started farming with five cattle that were grazing within the community. As the number increased, the farmer, together with some other farmers applied for more land, which turned out to be some distance from where the farmer lived. The distance proved to be a problem for the farmers who cannot afford to travel every day to the farm. The farm was allocated in Caledon, which is a 90km drive from Botrivier. As a result, some of the group members stopped farming. According to official No. 2, farmers who reside far from their farms risk having their infrastructure vandalised or stolen, even by fellow farmers.

Farmer No. 4, who had been allocated land, indicated that the grazing pasture of 30ha was too small for the 16 livestock owned. The land also does not have water rights. When smallholder farmer No. 4 took receipt of the land, the aim was to fight for the water right later, but the process is taking longer than expected. Farmer No. 4 added that smallholder farmers are coming to start farming on land that is already exhausted. The land has nothing; white farmers have already exhausted the land. When a smallholder farmer gets such land s/he can only harvest the first crop after which the land will be exhausted. The government then blames smallholder farmers for not being productive. The farmer added that during apartheid, farmers used to get subsidies from the government but now white farmers own the land as if they had worked for it without assistance. According to Kepe and Tessaro (2014), most of the arable land in the rural areas is taken. The state is now putting pressure on local people for production at a commercial scale, which can be seen as colonialism (Kepe & Hall, 2018).

The case is different with the WUA smallholder farmers. Farms are sizeable and not hindered by distance. However, the land quality is the same as that of the non-WUA smallholder farmers. The infrastructure on the farms are already exhausted and government support has been very late in coming, which has resulted in no productivity on the farms. This was the case with farmer No. 1, whose 16ha piece of land will only be in production by the year 2021. The farm should already have been converted into a commercial operation but the lack of infrastructure maintenance has delayed the process.

Access to the land by non-WUA smallholder farmers is hindered by lease agreements and terms. Farmer No. 1 is on a nine year lease agreement with an option to buy the land, while farmer No. 2 has a 99-year land lease with no option to buy. Farmer No. 3's land was leased

for three years, now extended to five years but with no option to buy. Farmer No. 4 leases land from the Overberg District Municipality and pays only R120.00 per year but has no option to buy. According to farmer No. 4, the lease restricts them from building any structure to harvest rainwater since the land lacks water. Farmers Nos. 5 and 6 inherited the land from their forefathers. Farmer No. 7 has a five-year lease agreement with the municipality, which is to be renewed in 2019 with an option to buy. Farmers Nos. 8, 9 and 10 have a five-year lease agreement with the municipality; the lease is meant to be renewed every five years, but with no option to buy. According to government official No. 2, there is a problem with communal land in that smallholder farmers fail to get lease agreements that are for a long period and the WCDoA cannot assist. Official No. 7 agreed that the lease terms of land issued to smallholder farmers have been a challenge.

The WUA smallholder farmers have been experiencing similar problems with land. The allocation of land has terms and conditions. According to farmer No. 1, the lease agreement is only for a short term and includes no option to buy. If only the lease includes an option to buy it would have been long enough. Though the smallholder farmers in the WUA have been given larger portions of land, the infrastructure on the land is damaged or in disrepair and needs to be refurbished. The land given to the smallholder farmers through the process of restitution is already exhausted; it can only produce for a certain period. Some of the smallholder farmers indicated that they had been set up for failure since they were given land with no water and rotten infrastructure. A few years down the line, the land will be unable to produce; land of suitable size and quality is mostly distant from where the applicant resides (Jacobs, 2003). According to Groenewald (2004) and Greenberg (2010), many land reform farms in South Africa have failed because of the unavailability of water for production. Although the government has programmes such as Land Restitution and Redistribution for Agricultural Development to buy land for smallholder farmers, white neighbouring farmers intentionally negotiate to buy and sell farms amongst themselves to keep smallholder farmers in a certain area and some of the lands is taken for state ownership (Jacobs, 2003; Kane-Berman, 2016). Some government officials suggest that smallholder farmers are better off using their small backyard gardens to sustain themselves and to sell the surplus since there are no grants for farmers with a lack of experience and skills in farming.

4.2.8 Comparing the challenges of WUA and non-WUA smallholder farmers

The non-WUA smallholder farmers face challenges in accessing water for agricultural use and have a low level of understanding of the process of a water user licence. The WUA smallholder farmers also face challenges in accessing water but their level of understanding is better than the non-WUA smallholder farmers. Table 4.4 below depicts the challenges faced by both WUA and non-WUA smallholder farmers in accessing water.

Table 4.4: Comparison of challenges* to WUA and non-WUA smallholder farmers in accessing water

The WUA smallholder farmers	The non-WUA smallholder farmers
<p>Resources</p> <ul style="list-style-type: none"> • Land sizes are big with damaged infrastructure to transport water. • Water is sufficient for agricultural use • High water rates • The land is borrowed, have no option to buy. • Lack of financial support 	<p>Resources</p> <ul style="list-style-type: none"> • Land sizes are small with no proper infrastructure to transport or store water • Inconsistence water supply • High water rates • The land is borrowed, have no option to buy • Lack of financial support
<p>Policy</p> <ul style="list-style-type: none"> • Well informed on water policy 	<p>Policy</p> <ul style="list-style-type: none"> • Low level of understanding of water policy
<p>Supporting organisation</p> <ul style="list-style-type: none"> • Farmers have representatives to simplify the application process 	<p>Supporting organisation</p> <ul style="list-style-type: none"> • Lack of engagement between the farmers and the organisation • No representative organisation in applying for the water user licence • Organisations prioritise production with high economic return

*The findings corroborate those of Ncube (2018)

4.3 The outcome of policy implementation

4.3.1 Ideal definition of a policy

According to Cataldo (1970), the aim of designing government policies is to bring changes in society. Therefore, by implementing government policies, old patterns of interaction and institutions are abolished or modified and new patterns of action and institutions are created to bring positive change in lifestyle and move away from the past policies (Smith, 1973). Since the advent of democracy in South Africa, new policies have been promulgated to address the inequality of the past (Brynard, 2007) regarding access to water for agricultural use. The NWA was to bridge the gap of the past policies to the new policies that bring social freedom. Planning of programmes and project management have been used as an approach for implementation in South Africa (Cloete et al., 2006). The national WAR strategy emphasises the establishment of the CMAs to improve water allocation. The processes were to be carried out through their CMS, as stipulated in Chapter 4 of the NWA, which lays the basis for regulating water use (South Africa. NWA, 1998).

Existing users still retain their access to water. The reason is that their business boosts the economy and if their access to water was curtailed, it is feared that the economy might collapse. Minister Kader Asmal, in an interview in 1994, voiced his disagreement with past

water regulation policies and advocated for customary rights but unfortunately this never came to fruition (van Koppen & Schreiner, 2014b). The same has been experienced in the Andean region, where customary law is being ignored and is perceived as an obstacle to a desired efficient water use (Rosegrant & Binswanger, 1994). Customary law holds back the progress of natural resources, including water, into full productivity due to lack of financial capital and technology (Garcia, 2007). As a result, the bulk of the water is still retained by the existing users with no action or progress in water allocation to the smallholder farmers as per policy objective.

According to Mosai (2004) and Bourblanc and Blanchon (2014), the CMAs were supposed to facilitate the process of WUL at the lower level, however, they were also experiencing challenges. The purpose of establishing the CMAs was to contribute to social and economic development. However, programmes to establish CMAs have been delayed. The transformation of IBs, which was to take six months according to the Act, has been very slow and is still not completed (Muller et al., 2009; van Koppen & Schreiner, 2014b).

4.3.2 The implementing organisation

The implementing organisation consists of structures of government officials with qualifications and skills to implement the policy required (Smith, 1973; Khan & Khandaker, 2016). From the interviews, it was revealed that the BGCMA, together with other supporting organisations, comprise structures and sections that deal with water allocation and other support forms that assist smallholder farmers in accessing water. The sections do not only deal with water allocation for agricultural use but also deal with other water uses. The interviews also revealed that the officials are experts in their area of work. However, there is a lack of resources in terms of human capacity, water availability and finance to fulfil the mandate of the water allocation process. Hence, there are still smallholder farmers with no access to water in the BGCMA. A similar study conducted in Zimbabwe found that catchments are barely functioning for a variety of reasons, including inability to exercise authority (Tambudzai et al., 2013). Ralekoa (2016, cited by Mofokeng, 2017) believes that the CMA's progress is hampered by not being able to function independently. This prevents them from learning by doing, in other words, from making mistakes but then being empowered and entrusted to rectify them.

4.3.3 The target group

According to Smith (1973) and Khan and Khandaker (2016), the target group are people that are mostly affected by the policy and are required to adapt to a new pattern of interaction by the policy. For the smallholder farmers to be able to adapt to the policy, they need to understand the processes of implementing a policy. The Act requires water users to apply for WUL only if the quantity of water required is above Schedule One, GA and if the water use has an impact on the water source (South Africa, NWA, 1998). From the interviews it was revealed

that the non-WUA smallholder farmers do not understand the process of water allocation; most of them do not even know the amount of water required for their agricultural activities. Exacerbating the failure to understand the water allocation process is that smallholder farmers fail to constantly communicate with the supporting organisation.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study set out to identify the challenges that smallholder farmers face in accessing water for agricultural use through the WULs. Three focal areas of policy, organisation and smallholder farmers were assessed. In this chapter, conclusions are drawn with reference to the research objectives and results and recommendations and areas for further research are suggested.

5.2 Summary of the study

The NWA was promulgated in 1998 to redress past imbalances in water access in terms of race and gender. For the objectives of the NWA to be achieved, it requires tools and programmes in place. The WAR strategy was the tool used to achieve the objective of NWA. The WAR established its own programme with short and long-term targets to assist in the allocation of water to smallholder farmers. The WAR targets were to allocate 45% of water gradually in 2019 and 60% by the year 2024. However, the WAR has had little impact to date. The issuing of water use licences to smallholder farmers is one of the key strategic mechanisms for enabling water access but this process remains complex and tedious, resulting in few licences being issued. This has undermined the contributions of smallholder farmers to food production, their efforts to ensure food security, poverty eradication and boosting the economy of South Africa.

This study used the Policy Implementation Framework to identify the shortfalls of the policy and organisation in addressing access to water by the smallholder farmers through WULs. The results have highlighted the shortfalls of the policy and that of the organisation in successful policy implementation. Engagement between the supporting organisation and the lack of understanding of the processes of WULs by the smallholder farmers delay the allocation of water to them. This calls for more capacity building and awareness of the importance of water licences.

5.3 Limitation of the study

The conclusion should be read, bearing in mind that the DRDLR was not available for an interview during the course of the study. Lack of input from them is deemed a limiting factor because there is very little information on how land reform could hinder water allocation at the organisational level.

5.4 Conclusions and recommendations

5.4.1 Status review of the national Water Allocation Reform

Regarding the national WAR and how it has contributed towards achieving equity in access to water by the smallholder farmers, it was found that access to water by smallholder farmers has not improved. The bulk of the water is accessible to smallholder farmers that are WUA affiliated and the commercial farmers. Exacerbating access to water by the commercial farmers is the fact that ELU remains legal for the existing users. The concept remains a sore point for government. There is also a fear that the economy of the country might collapse if water is taken away from existing lawful water users and given to smallholder farmers whose production contributes less to the economy.

Mechanisms such as CL and GA were introduced as tools for the uptake of water by smallholder farmers. However, the CL was found to be slow in the piloted catchment area. The volume of the GA has also been revised to be lower than that of Schedule One, forcing existing GA water users to apply for licences. The revision of this category of water use makes the poor even more vulnerable, considering the little water to which they have access (van Koppen & Schreiner, 2014).

5.4.2 Review of the Breede-Gouritz Catchment Management Agency strategy

In exploring the WAR strategy of the BGCMA in allocating water to smallholder farmers, the study found that the BGCMA is struggling with allocating water to smallholder farmers. Almost 100% of the water in the Breede-Gouritz WMA has been allocated. There is no more water to allocate to potential water users, including smallholder farmers. Mechanisms that were supposed to make water available, such as CL, have not been implemented in the BGCMA. The BGCMA has to negotiate with existing water users to give up some of their water and most existing water users are not happy with the decision. Though the BGCMA has made some progress in allocating water to some smallholder farmers, there is still a huge gap of accommodating smallholder farmers in access to water through WULs to reach the target of 15% of HDIs as indicated in the 2011/2012 strategy of BGCMA (2012b). The process of water licensing in which the BGCMA is assisting the DWS, is still cumbersome. This delays the issuing of water licences to smallholder farmers.

The perception that smallholder farmers still do not have access to water was confirmed in study area and in the whole catchment. It can be concluded that smallholder farmers do not have access to water and the reforms of water allocation have not been successful in ensuring adequate access to water by smallholder farmers.

5.4.3 Organisational capacity challenges on water allocation reform

In determining the organisational capacity challenges that the BGCMA faces in fulfilling its WAR strategy through WUL application processes, it was found that the BGCMA has been experiencing challenges of coordination with other organisations with whom they work, in

terms of assisting smallholder farmers with agricultural activities and access to water. Although the BGCMA implemented roadshows to make the information available to smallholder farmers in collaboration with other organisations, there is still a lack of engagement with smallholder farmers, especially those who are non-WUA. Some smallholder farmers still do not know whom to approach for assistance in access to water. The process of water allocation is very slow in the BGCMA due to lack of human capacity. Studies confirm the delay in the establishment of CMAs as an impediment to WAR processes (Bourblanc, 2011; Denby et al., 2016; Meissner et al., 2016). There is a need for a separate unit that will expedite WAR to improve access to water. There is also a lack of collaboration and coordination within organisations that assist smallholder farmers. This is because the mandates and policies from various organisations differ on how to assist smallholder farmers.

5.4.4 Challenges facing smallholder farmers in applying for water licences

In determining the socio-economic capacity challenges that smallholder farmers face in applying for water licences, it was revealed that the smallholder farmers still have a problem in applying for WULs to access water. Non-WUA farmers 1, 2, 3, 4, 7, 8, 9 and 10 had short-term lease agreements which prevented them from applying for financial assistance from banks. Farmers 5, 6, 7, 8, 9 and 10 did not even know the amount of water they needed for their land or even if they needed to apply for a licence. It is known that applications for licences for small water users will clog the electronic WUL application system (Anderson et al., 2007). For small quantities of water use, the user can be a registered user and does not need to apply for a licence. However, the revision of GA for individual water use has been reduced to even lower than that of Schedule One (van Koppen & Schreiner, 2014b). This forces smallholder farmers to apply for licences, which becomes costly as they are expected to pay high water rates. The non-WUA smallholder farmers do not make much profit from production and every cent they make is churned back into farm operations.

Persistent requests have been made to the supporting departments by non-WUA smallholder farmers 3, 4, 5, 6, 8 and 9 for assistance in access to water for agricultural use. However, there has been a delay or no feedback from the supporting organisation.

Farmer No. 10 never visited any organisation seeking assistance due to a lack of resources. Smallholder farmers lack resources to consult organisations for help and expect the officials from the organisations to come to them. This has left most of the smallholder farmers relying on one department to do everything for them as it saves them time and the cost of going from one organisation to another seeking help. However, the case is different with WUA smallholder farmers. They are well informed and better off since they have representatives that speak on their behalf. The WUA smallholder farmers also engage with one another and stay close to resources such as water and have sizeable areas of land, a finding which is confirmed by

Ncube (2018). The non-WUA smallholder farmers live far from each other, which means the incurrence of very high costs by government for infrastructure to be constructed to access water.

5.5 Recommendations of the study

South Africa is a water-stressed country. Even though the BGCMA has implemented strategies to ensure that there is water for smallholder farmers, there is still no water. To solve these water challenges, this study suggests the following recommendations:

- Once enough water is accumulated, there is need to establish catchments that will act as tapping points for the non-WUA smallholder farmers who are not well established, to be able to access the water.
- There is a need for coordination of supporting organisations (WCDoA; DRDLR and DWS) who are conducting similar activities.
- Establish a unit within the BGCMA that focuses purely on water licensing for smallholder farmers.
- Capacitate institutions that implement water allocation in terms of skills and funds to render water allocation.
- Revise water policy, especially the ELU, to make water available for potential and existing users.
- To ensure that more farmers participate in the interview, the researcher recommends engaging and spending more time with the farmers to regain their trust.

5.6 Areas for further research

Further research should be done in categorising farmers in South Africa. This will assist in creating a more equitable platform for WUL application processes rather than using the same procedure for farmers that do not have the same capacity, skills and resources.

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APPENDICES

APPENDIX A: Interview questionnaire for organisations that support smallholder farmers



<p>Name of interviewee _____</p> <p>Date of interview _____ Start time _____ Finish time _____</p> <p>Place of interview _____</p> <p>Organisation _____</p>
--

Section A: Background information

1. How long you have been working for the organisation? _____
2. What are your roles in your organisation? _____

Section B: Engagement

3. Who is your target group regarding your role in the organisation? _____

4. Please describe the level of engagement with your target group _____

5. Are there challenges that you encounter in working with your target group?
Yes No
6. If there are any challenges, please describe those challenges _____

Section C: Policy

7. Please describe the kind of support you provide to your target group_____

8. Describe the policies that are in place for the support you provide to your target group

9. Describe the process of implementing the policies that you have highlighted?_____

10. Which other organisations do you work with in implementing the policies you have highlighted?_____

11. Are there challenges that you experience in working with those organisation?

Yes No

12. If there are challenges, please describe the challenges that you experience working with those organisation_____

13. Please highlight the achievements that you have had so far in implementing your policies

14. What challenges/drawbacks/hindrances have you experienced in implementing the policies?_____

15. How have you overcome the challenges?_____

Thank you for your time

APPENDIX B: Interview questionnaire for organisations that represent smallholder farmers



<p>Name of interviewee _____</p> <p>Date of interview _____ Start time _____ Finish time _____</p> <p>Place of interview _____</p> <p>Organisation _____</p>
--

Section A: Background information

1. How long have you been with this organisation? _____
2. What are your roles and responsibilities in this organisation? _____

Section B: Engagement

3. Who is your target group? _____

4. Please describe the level of engagement with your target group _____

5. What challenges do you face in engaging your target group? _____

Section C: Policy

6. Please describe the kind of support you provide to your target group _____

7. Please describe the policies that are in place for the support you provide to your target group

8. Please describe the process of implementing the policies that you have highlighted?__

9. Which other organisations do you work with in implementing the policies you have highlighted?_____

10. What challenges do you face in working with these organisations_____

11. Please highlight the achievements that you have had so far in implementing your policies

12. What challenges have you experienced in implementing the policies?_____

13. How have you overcome the challenges?_____

14. What suggestions do you have for the improvement of the policy and implementation for assisting your target group?_____

15. Do you have any concluding remarks or questions for me?_____

Thank you for your time

APPENDIX C: Interview questionnaire for WUA smallholder farmers



<p>Name of interviewee _____</p> <p>Date of interview _____ Start time _____ Finish time _____</p> <p>Place of interview _____</p> <p>Organisation _____</p>
--

Section A: Farmers background information

1. Please tell me a brief background of yourself _____

2. What type of farming are you practising? _____

3. Are you farming as a group or individual? _____
4. How many are you? _____

Section B: Resources

5. Where do you get water for your agricultural activities? _____

6. Please explain how you got the land on which you are practising your agricultural activities?

7. How much water do you use per day on your farm? _____

8. Is the water enough for your agricultural activities?

Yes No

9. If the water is not enough, how do you sustain your agricultural activities? _____

10. How much do you pay to use the water? _____

11. Are you able to able to pay for the water that you need for your agricultural activities?

Yes No

12. What happen to your access to water if you are not able to pay? _____

13. What category of water authorisation do you belong to? _____

14. Is the water that you are using on your farm for your agricultural activities registered?

Yes No

Section C: Infrastructure

15. Please explain how you transport water from the source to your farm? _____

16. Where do you store water for your agricultural activities? _____

Section E: Support services and engagement

17. When did you join the Water User Association to which you belong? _____

18. Please explain how you joined the WUA _____

19. How have you benefited from being a member of WUA? _____

20. What challenges do you face in working with the WUA? _____

21. Which other organisation(s) is helping you in getting water for your agricultural activities?

22. Please describe the support you get from these organisations? _____

23. How has the support you receive from other organisations benefitted you? _____

24. What challenges have you faced to access support from other organisation(s) you mentioned? _____

25. Do you have any concluding remarks or questions for me? _____

Thank you for your time

APPENDIX D: Interview questionnaire for non-WUA smallholder farmers



<p>Name of interviewee _____</p> <p>Date of interview _____ Start time _____ Finish time _____</p> <p>Place of interview _____</p> <p>Organisation _____</p>
--

Section A: Farmer background information

1. Please tell me a brief background of yourself _____

2. What type of farming are you practising? _____

3. Are you farming as a group or individual? _____
4. How many are you? _____

Section B: Resources

5. Where do you get water for your agricultural activities? _____

6. Please explain how you get the land on which you are practising your agricultural activities

7. How much water do you use per day on you farm? _____

8. Is the water enough for your agricultural activities?

Yes No

9. If the water is not enough, how do you sustain your agricultural activities? _____

10. Are there any payments required to get water for your agricultural activities?

Yes No

11. If yes, are you able to pay for the water that you need for your agricultural activities?

Yes No

12. Which category of water authorisation? _____

13. Is the water that you are using now for your agricultural activity registered?

Yes No

Section C: Infrastructure

14. Please explain how you transport water from the source to your farm _____

15. How do you store water for your agricultural activities? _____

16. Is the water able to sustain you, if so for how long? _____

Section D: Support services and engagement

17. Which organisations are helping you to get water for agricultural use? _____

18. Please explain how the organisation(s) is assisting you in getting water _____

19. How have you benefitted from the support that you get from the organisation? _____

20. What challenges do you experience in getting water for agricultural activities? _____

21. Do you think belonging to Water User Association could benefit you?

Yes No

22. If yes, what are the reasons why you do not belong to any WUA? _____

23. If no, please explain your answer? _____

24. Do you have any concluding remarks or questions for me? _____

Thank you for your time

APPENDIX E: Consent form for organisations

Faculty of Applied Sciences

Department of Environmental and Occupational Studies

Physical: Corner of Keizersgracht and Tennant Street Zonnebloem

Postal: PO Box 652, Cape Town 8000

Tel: +27 21 460 9068

Fax: +27 21 460 9193

Email: OdendaalJ@cput.ac.za

Website: <http://www.cput.ac.za>

CONSENT FORM

My name is Awelani Sadiki. I am a Masters student from the Cape Peninsula University of Technology. I am very grateful that you have agreed to participate in this interview session for my research project entitled "Challenges of accessing water for agriculture by emerging farmers of the Breede-Gouritz Catchment Management Agency".

The purpose of this interview is to understand how your organisation supports emerging farmers in their agricultural activities.

Your participation is entirely voluntary. You may refuse to take part in the interview or you may stop at any time if you do not wish to continue. You also have the right not to respond to any issues during the interviews if you feel uncomfortable. The nature of the interview is that of a discussion, which requires uninterrupted attention from my side to understand and follow the discussion. This therefore necessitates audio recording of the interview. However, the information collected in this interview will only be used for the study purposes and not for any publication. It will be treated with confidentiality and remains anonymous.

The duration of the interview is estimated at 30 – 45 minutes.

- By signing below, you confirm that you agree to participate in the study and that your participation is entirely voluntary.

If you have questions about this interview, my contact details are provided below.

Researcher: Awelani Sadiki

Contact number: 064 752 6363

Email: awelani.sadiki1@gmail.com

SIGNATURE **DATE**.....

APPENDIX F: Consent form for smallholder farmers

Faculty of Applied Sciences

Department of Environmental and Occupational Studies

Physical: Corner of Keizersgracht and Tennant Street Zonnebloem

Postal: PO Box 652, Cape Town 8000

Tel: +27 21 460 9068

Fax: +27 21 460 9193

Email: OdendaalJ@cput.ac.za

Website: <http://www.cput.ac.za>

CONSENT FORM

My name is Awelani Sadiki. I am a Masters student from the Cape Peninsula University of Technology. I am very grateful that you have agreed to participate in this interview session for my research project entitled "Challenges of accessing water for agriculture by emerging farmers of the Breede-Gouritz Catchment Management Agency.

The purpose of this interview is to understand how organisations support you with your agricultural activities.

Your participation is entirely voluntary. You may refuse to take part in the interview and you may stop at any time if you do not feel to continue. You also have the right not to respond to any issues during the interviews if you feel uncomfortable. The nature of the interview is that of a discussion and this requires uninterrupted attention on my side to understand and follow the discussion. This therefore, necessitates an audio recording of the interview. However, the information collected in this interview will only be used for the study purposes and not for any publication. It will be treated with confidentiality and remains anonymous.

The duration of the interview is estimated at 30 – 45 minutes.

- By signing below, you confirm that you agree to participate in the study and that your participation is entirely voluntary.

If you have questions about this interview, my contact details are provided below.

Researcher: Awelani Sadiki

Contact number: 064 752 6363

Email: awelani.sadiki1@gmail.com

SIGNATURE **DATE.....**

APPENDIX G: Grammarian letter

22 Krag Street
Napier
7270
Overberg
Western Cape

25 July 2020

LANGUAGE & TECHNICAL EDITING

Cheryl M. Thomson

*CHALLENGES OF ACCESSING WATER FOR AGRICULTURE BY EMERGING
FARMERS OF THE BREEDE-GOURITZ CATCHMENT MANAGEMENT AGENCY*

Supervisor: Dr Bongani Ncube

This is to confirm that I, Cheryl Thomson, executed the language and technical editing of the above-titled Master's dissertation of AWELANI SADIKI, student number 215306244, at the CAPE PENINSULA UNIVERSITY OF TECHNOLOGY in preparation for submission of this dissertation for assessment.

NOTE: On enquiring why no page numbers are included in the in-text Harvard citations, I was informed that CPUT's Faculty of Applied Sciences does not require such.

Yours faithfully



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